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ABSTRACT

The seventh in a series, this report reviews microcomputer software authorized by the Alberta (Canada) Department of Education from January 1987 through December 1987. This edition provides detailed evaluations of 23 authorized programs for teaching business education, mathematics, the sciences, language arts, music, problem solving, and French. Five of the programs are in French, and both English and French subject indexes are provided, as well as an index in which titles appear in the original language; evaluations are written in the language of the program. Each evaluation includes the program title; author; producer(s); address; telephone number; grade level; topics; components; hardware requirements (22 of the programs are for Apple microcomputers and one for the IBM PC/PCjr); other formats available (not evaluated); year produced; cost; subject area; and display language. Also included are objectives; descriptions and evaluations of content, instructional format, the technical system, technical characteristics, and implementational support; a summation of the evaluation; the status of the program (basic, recommended, or supplementary); and purchase information. A summary of authorized courseware from January 1983 to December 1986 and a list of other print and electronic evaluation sources are appended. (MES)

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Computer Courseware Evaluations

January 1987 to December 1987

Volume VII

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Curriculum

IR013264

Alberta EDUCATION

COMPUTER COURSEWARE EVALUATIONS

January 1987 to December 1987

Volume VII

Curriculum Support Branch
Student Programs and Evaluation Division
Alberta Education

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Alberta Education acknowledges with appreciation the valuable contributions of the many teachers throughout Alberta who spent countless hours analyzing hundreds of computer software programs over the past twelve months.

Also, many thanks to: Project Manager Terry Kernaghan; Carol-Anne Riome for compiling and editing; Mary Knox, Patricia Shields and Thérèse Pavone for their work on the synthesis reports and courseware summaries; Ratan Lawrence and Joanne McKinnon for word processing.

INTRODUCTION

This publication is a service document containing evaluative information about computer courseware and is designed to guide and assist Alberta educators in the purchase of computer courseware. The materials in the guide do not constitute an exhaustive listing, but, rather, they are the best computer courseware products supporting the Alberta curriculum which could be located over the past twelve months.

Alberta Education uses a three-stage process for the evaluation of computer courseware products. Materials are first screened and, if found appropriate, the courseware is then evaluated independently by up to three teachers who have been trained and tested in evaluation techniques and in the use of an evaluation instrument developed by Alberta Education. The second-stage reports are synthesized and successful materials advance to the final stage. In that final stage, the courseware is assessed by Alberta Education's Curriculum Design, Curriculum Support and Language Services Branches, which make a decision on its status. Three designations are used: basic, recommended and supplementary. These are defined as follows:

Basic Learning Resources are those learning resources approved by Alberta Education as the most appropriate for meeting the majority of the goals and objectives of courses, or substantial components of courses outlined in the provincial programs of studies.

AND

Those productivity software programs (e.g., word processors, spreadsheets, databases, integrated programs) approved by Alberta Education that can be used to achieve important objectives across two or more grade levels, subject areas, or programs.

Recommended Learning Resources are those learning resources approved by Alberta Education because they complement basic learning resources by making an important contribution to the attainment of one or more of the major goals of courses outlined in the provincial programs of studies.

Supplementary Learning Resources are those learning resources approved by Alberta Education because they support courses outlined in the provincial programs of studies by enriching or reinforcing the learning experience.

USING THE CATALOGUE

This publication is a listing of computer courseware evaluation reports. Each evaluation report is entered alphabetically, by title. A subject and title index are provided for convenient access to each report.

As indicated on the previous page, Alberta Education authorizes learning resources at basic, **recommended or supplementary** levels. It is important for readers, particularly those outside of Alberta, to note that a major factor in the differentiation between these three levels is the amount of the Alberta curriculum that a product covers: one product may have a "lower" status than another, but this may be due entirely to the relatively limited scope of the objectives it supports in the Alberta curriculum.

Readers should also note that the designations used by Alberta Education are not equivalent to numerical scales or the summary phrases commonly in use by other evaluation agencies. Developers of this guide have deliberately avoided summarizing products with a single phrase or a numerical total as readers may place undue emphasis on such entries which, by their nature, are incomplete and misleading. The courseware products described in this publication may have varying strengths and weaknesses; they have different objectives and different pedagogical strategies designed to achieve these objectives. To gain full appreciation of the quality of the contents, the full report must be read.

This publication is the seventh of its kind issued by Alberta Education.

A summary of all courseware authorized by Alberta Education for the period January 1983 to December 1986 has also been included. Grade level, resource status, location of the complete evaluation report, and computer compatibility (Apple IIe, Apple IIgs and/or IBM) are provided.

ACQUIRING THE PRODUCTS

Sources for the products listed in this document are given at the end of each evaluation report. Although most of these products are available through the Learning Resources Distributing Centre (LRDC), courseware with a **supplementary** status may be more readily available through local distributors in your area. The following information is provided to clarify Alberta Education's present role in such acquisitions.

Products identified as **basic** or **recommended** learning resources are acquired and provided at discount prices through the Learning Resources Distributing Centre. This is a branch of Alberta Education and discount prices are available to Alberta schools only. The Learning Resources Distributing Centre issues an annual catalogue of products, and schools should order materials using the required forms.

The Learning Resources Distributing Centre also handles warranties and returns for microcomputer products. Please note that the principals/purchasing officers are required to certify that the microcomputer products being purchased are for use by the school, and the products' copyrights will be protected.

The majority of authorized microcomputer products fall within the category of **supplementary** learning resources. Schools can purchase such products through the Learning Resources Distributing Centre's special order process (please refer to the LRDC Buyer's Guide for special ordering procedures).

HOW TO ORDER ADDITIONAL COPIES OF THIS CATALOGUE

Limited copies of this report are provided without charge to educational institutions within Alberta. Schools wishing additional reports, or educators from outside of the province wishing to acquire the report, may purchase copies from the Learning Resources Distributing Centre.

Learning Resources Distributing Centre
12360 - 142 Street
Edmonton, Alberta
T5L 4X9
Phone: (403)427-2767

PLEASE NOTE: All orders must be accompanied by cheque or money order for $3.00 in Canadian Funds made payable to the LEARNING RESOURCES DISTRIBUTING CENTRE.

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EVALUATION REPORTS

ALGEBRA WORD PROBLEMS II

DESCRIPTION

Title: Algebra Word Problems II: Area, Perimeter and Lever
Series: Success with Algebra
Authors: Doug Higgins & Mike Sansur
Publisher: Mindscape Inc
Source: 3444 Dundee Road, Northbrook, IL 60062
Subject: Mathematics
Topics: Solving word problems dealing with area, perimeter & levers
Components: 1 disk with backup, teacher's guide (13p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor, printer (optional)
Other Formats Available (not evaluated): Available only in Apple format

Version: 1985
Display Language: English
Cost: $39.95 US (1987)
Tel. #: (312) 480-7667
Users: Grade 10

OBJECTIVES

This program is designed to give students practice and guidance in applying the following fundamental principles of algebra: gathering and organizing information from a word problem, expressing the relationships of the data in the form of an equation, using an equation to solve for an unknown and translating the solution of an unknown into the solution of a verbal problem. It also assists students in developing strategies to analyze and solve area, perimeter and lever word problems.

PEDAGOGICAL CONTENT DESCRIPTION

This program is designed to assist beginning algebra students to achieve a degree of competence in analyzing and solving word problems dealing with area, perimeter and levers. The approach for the solution of a problem is the same in each problem section and it includes the following: break down the information given in the problem and identify the unknown; formulate the stated or implied relationships into an algebraic equation; solve for the unknown in the equation, using standard algebraic operations; and translate the solution for the unknown into the answer to the word problem. The student may choose to see the general instructions which contain information about the entire program, select a sample problem (a short tutorial) or choose problems in a specified section. If the student selects a sample problem, he or she is taken through an instructional sequence in a step-by-step manner. Each program also explains the basic equations used in the program and how the equations should be applied. An error analysis which may be printed follows each problem and is cumulative for each sitting. Most problems are not metricated.

PEDAGOGICAL CONTENT EVALUATION

The range and depth of content are appropriate for the target audience; however, the restriction of the polygons to squares and rectangles is limiting. The sequence of presentation is appropriate and effective for achieving the intents of the program. The well structured sample problem (tutorial) involves the student in a step-by-step approach to get a solution. The fact that the student may choose as many randomly-generated sample problems as are needed before trying the drill problems adds strength to the program. The program provides unlimited drill and the ESC feature allows the user to quit the program at any stage. However, this highly structured approach may become tedious for students who are capable of solving the problems using other strategies.

The questions for the most part, with the exception of a few in area and perimeter, are not metricated. It would be beneficial to have all measurements metricated.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of name entry, menu selections, page turning using RETURN, using ESC to exit, inputting algebraic terms, expressions and numerical answers to solve the problems.

The problems in both the tutorial and the drill are randomly generated. The format which is used is consistent for all three types of problems. The student may elect to skip the instructions and sample questions and go directly to the drill.

Textual feedback which includes the user's name is provided after every response. Each correct response receives a short congratulatory message. On the first incorrect response, the user is told to try again. If the second attempt is incorrec, generally the relevant section in question is highlighted, a short explanation is provided and then the correct answer is given. The student must input the correct answer to continue. Quantitative feedback which is in an error analysis format is provided after the completion of each problem. It indicates the type and total number of errors made. The error analysis is cumulative as long as the student remains within a particular problem type. No pre- or post-tests are provided.

INSTRUCTIONAL FORMAT EVALUATION

The student interaction is easy, consistent and appropriate with the student being actively involved for most of the program. The instructional technique using the step-by-step problem solving format can be an effective learning device; however, it may become tedious for students who become proficient in solving these problems and wish to use shorter or different strategies. The incremental steps within the sequence are small but the sequence from easy to hard could have been developed more. The randomization of the problems, including the sample problems, is good. The program is tolerant in accepting various correct forms of inputs. The correct answer must be entered in order to continue the program, but it is usually provided by the program after two incorrect attempts.

The feedback is consistent and usually appropriate; however, the suitability of some of the congratulatory comments is questionable. For example, the use of "brilliant" after the correct answer was entered when a user had two consecutive errors and received the correct answer from the program is not appropriate. More assistance with the negative feedback and the inclusion of pre- and post-tests would be beneficial.

TECHNICAL CHARACTERISTICS DESCRIPTION

The letters and numbers are presented in standard size text using both upper and lower case letters. Graphics are used for the diagrams. A split screen is used when solving a problem. Some flashing and highlighting are used. Colour is available but no sound is used.

TECHNICAL CHARACTERISTICS EVALUATION

The textual displays, size of text and graphics are appropriate for the target audience. The displays are clear and easy to read. The use of graphic simulation and split screens for the question and answer areas are effective. Highlighting is used effectively for emphasis and feedback. Although colour is available, displays on a monochrome monitor are clearer. The program is easy to use and appears to be bomb-proof under normal use.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

No specific entry competencies are listed but the documentation states that the program is intended as an adjunct to classroom instruction and textbook reading. There are no user support materials or management system provided. An error analysis can be printed before the student leaves the program, otherwise it is lost.

The teacher documentation includes the objectives, program description, program structure, instructions on program use, an explanation of the error categories and some sample screens.

IMPLEMENTATIONAL SUPPORT EVALUATION

Although no entry competencies are specified, students should be familiar with the concepts of area, perimeter and levers and should be able to multiply binomials. The documentation is clear and concise and provides sufficient information to use the program. Although a cumulative error analysis for each type of problem can be printed, the lack of a management system to record and store student records is a weakness. The inclusion of user support materials to be used as follow-up activities with the students would be beneficial. It would be useful to have more teacher control in setting the number and kind of problems to be done. This program can be implemented easily and will require minimal teacher supervision.

SUMMATION

The major strengths of the program are the ease of use, good student interaction, instructional format, good tutorial sections, effectively randomized questions, unlimited number of questions for drill and practice, and good use of graphics in the geometric figures.

The weaknesses include the lack of a management system, minimal corrective feedback with no remedial branches, lack of metrication and the lack of user support materials. The fact that the topics are not structured to guide the learner steadily through a more difficult series of tasks is also a weakness. The inclusion of pre- and post-tests would enhance the program.

APPLE PRÉSENTE LE APPLE IIe

DESCRIPTION

Titre: Apple présente le Apple IIe
Auteurs: J.D. Eisenberg et Bruce Tognazzini
Éditeur: Apple Computer Company
Source: 10260 Bandley Drive, Cupertino, CA 95014
Matière: Initiation à l'informatique
Sujets: Les fonctions du clavier Apple IIe
Composantes: 1 disquette
Matériel requis: Apple IIe/IIgs, 1 unité de disque, clavier bilingue, moniteur
Disponibilité sur d'autres ordinateurs (pas d'évaluation): Disponible sur format Apple seulement

Version: 1983
Langue d'affichage: Français
Coût: Aucun
Tel. #: (408) 996-1010
Utilisateurs: 3e à 6e année

NOTE:

Une différente version de ce programme est disponible pour chaque modèle de la famille Apple II (le Apple II+ requiert les palettes de jeux).

OBJECTIFS

L'utilisateur saura comment utiliser le clavier du Apple IIe pour entrer des réponses et des commandes de contrôle. Il saura aussi comment corriger des erreurs de frappe.

DESCRIPTION DU CONTENU PÉDAGOGIQUE

Le contenu du programme varie un peu, selon le type d'ordinateur Apple qu'il introduit. En général, le programme discute la fonction de chaque clé sur le clavier du micro-ordinateur et inclut une discussion sur:

-la touche RETURN pour faire accepter une entrée et pour changer la page-écran;
-les ressemblances entre le clavier d'une machine à écrire et celui d'un micro-ordinateur;
-les flèches pour contrôler le mouvement du curseur;
-les différences entre les clés pour le chiffre zéro et la lettre "O";
-les différences entre les clés pour le chiffre "1" et la letter minuscule "l";
-les fonctions de la barre d'espacement;
-le fonctionnement des touches SHIFT, CONTROL, ESC, et RESET;
-l'emploi de CONTROL G pour produire un bip sonore;
-un programme amical contre un programme non-amical;
-les commandes de base "catalog" et "run".

ÉVALUATION DU CONTENU PÉDAGOGIQUE

L'étendue du programme est appropriée pour un utilisateur débutant avec un Apple IIe. Le programme a une bonne suite logique, en petites étapes. L'utilisateur doit entrer une réponse juste avant de pouvoir progresser dans la séquence. La richesse du programme est suffisante pour atteindre les buts du programme.

DESCRIPTION DES TYPES D'INTERVENTION PÉDAGOGIQUE

L'interaction de l'élève avec le programme consiste à appuyer sur chaque clé quand elle est présentée et à appuyer sur la touche RETURN pour feuilleter les pages. Les questions sont présentées dans un ordre pré-programmé. La rétroaction est immédiate: une réponse juste reçoit un message textuel positif; une réponse fausse reçoit un indice textuel et illustré (par exemple, la clé à appuyer clignote sur un diagramme du clavier).

ÉVALUATION DES TYPES D'INTERVENTION PÉDAGOGIQUE

Les types d'intervention pédagogique utilisés dans le programme sont très appropriés pour la clientèle cible. L'élève est introduit, d'une façon séquentielle, aux différentes clés. Il y a suffisamment d'interaction avec le programme pour assurer la motivation de l'élève. La séquence linéaire, qui est efficace pour l'élève qui utilise le programme pour la première fois, deviendrait ennuyant après quelques emplois. La rétroaction instantanée est appropriée et non-menaçante. Les indices qui aident l'élève à trouver la bonne réponse sont utiles. Ils sont présentés jusqu'à ce que l'utilisateur entre la bonne réponse.

DESCRIPTION DES CARACTÉRISTIQUES TECHNIQUES

Le texte dans le programme est de format régulier, avec des lettres majuscules et minuscules. Tous les caractères français spéciaux et nécessaires sont présents à l'éran. Ce programme utilise des graphiques à haute résolution pour représenter le clavier du micro-ordinateur. Le son est présenté en conjonction avec le bip qui se fait entendre quand les touches "CONTROL et G" sont pressés simultanément. Le clignotement et la mise en évidence inverse servent pour mettre en valeur. La couleur est présente.

ÉVALUATION DES CARACTÉRISTIQUES TECHNIQUES

Les affichages à l'écran sont clairs et faciles à lire. Les caractères français sont faciles d'accès à travers le clavier bilingue présenté dans ce programme. La représentation à haute résolution du clavier, avec le clignotement inverse de la clé en question, produisent ensemble une présentation qui est très facile à suivre. Même si le programme contient de la couleur, il peut être utilisé efficacement avec un moniteur vidéo. Le programme est amical, fiable et sans piège pour l'emploi normal dans une salle de classe.

DESCRIPTION DU MATÉRIEL D'APPUI

"Apple présente le Apple IIe" est conçu pour familiariser, avec le micro-ordinateur Apple IIe, l'utilisateur qui n'a aucune connaissance de l'informatique.

Dans le manuel de l'utilisateur/trice se trouve une section, d'une douzaine de pages, qui sert de documentation pour ce logiciel. Elle contient une introduction, comment insérer la disquette dans l'unité de disque, comment amorcer le système, de l'information sur le clavier: touches spéciales, caractères majuscules et minuscules, déplacement du curseur, caractères de contrôles, et les clés à fonctions spéciales.

Aucun matériel de soutient n'est inclus pour l'utilisateur.

ÉVALUATION DU MATÉRIEL D'APPUI

La partie du manuel qui se réfère à cette disquette est bien expliquée mais, le tutoriel sur la disquette étant tellement bien présenté, la documentation n'est pas nécessaire afin d'utiliser ce programme. La documentation peut servir d'aide-mémoire si l'utilisateur a oublié quelque chose.

SOMMAIRE

La présentation logique des clés de fonctionnement, des excellentes caractéristiques techniques et des types d'interventions pédagogiques valables, font de ce programme un outil utile pour l'enseignement des fonctions du clavier du micro-ordinateur à ceux qui débutent leurs expériences sur un Apple IIe.

STATUT

"Apple présente le Apple IIe" est reconnu comme ressource pédagogique de statut **SUPPLÉMENTAIRE** pour l'initiation à l'informatique pour la 3e à la 6e année.

ACHAT

Ce produit n'est pas protégé contre la reproduction. Il est fourni gratuitement avec chaque achat d'un ordinateur Apple IIe.

A cause de l'interaction fréquente avec le programme, une disquette ne peut amorcer plus d'un ordinateur à la fois.

CARRYING: REGROUPING FOR ADDITION

DESCRIPTION

Title: Carrying: Regrouping for Addition
Series: Guildmaster Series
Authors: Dr Charles Reigeluth et al
Publisher: Renaissance Learning Systems
Source: 701 Hamilton Parkway, Syracuse, NY 13214
Subject: Mathematics
Topics: Understanding the concepts of carrying
Version: 1985
Display Language: English
Cost: $69.95 US (1987)
Tel. #: (315) 445-2508
Users: Grades 3 & 4
Components: 1 tutorial disk, 1 speed game disk, 1 start-up disk, teacher's guide (19p.), symbols chart
System Requirements: Apple II+/IIe/IIc, 64K, 1 disk drive, colour monitor preferred, printer (optional)
Other Formats Available (not evaluated): Available only in Apple format

OBJECTIVES

The program is designed to give the student a conceptual understanding of the process of carrying in the addition of two digit numbers as well as drill and practice to fully internalize and "automatize" this skill.

PEDAGOGICAL CONTENT DESCRIPTION

This program is composed of four sections, covered on three disks. They are:

1. An optional tutorial contains about 9 pages of instruction and demonstrations on carrying. The user may repeat the entire section or certain parts if desired.
2. The practice exercises consist of groups of 10 addition questions dealing with two 2-digit numbers. The user must correctly answer at least 8 of the 10 in order to advance to the speed drills. The student receives help for errors and is returned to the demonstrations after 3 consecutive errors.
3. The third section (disk #2) consists of a speed drill. A set of 10 questions dealing with the addition of two 1 and/or 2-digit numbers (all involving carrying) is presented. The student is timed and receives a rank at the end of the drill (e.g. super speed demon, quick wit, slow poke). Times are recorded and the student is encouraged to better his or her time. Nine different difficulty levels are available with the speed of the clock varying from one category to the next. Incorrect answers are penalized by lost time; in addition, the student may receive further demonstrations before being allowed to continue.
4. The fourth section (disk #3) contains a management system for the teacher.

PEDAGOGICAL CONTENT EVALUATION

The program's sequence is well defined. The tutorial is very clearly presented, with step by step instructions for completing questions. In addition, the instruction proceeds from the concrete to the abstract with part of the lesson showing moving blocks to strengthen visual understanding; later sections just show numerals. The student is able to enter the program's sequence at various points, repeat all or parts of the tutorial before advancing to the practice exercises, and do speed drills at various levels of difficulty.

The range and depth of the content is also appropriate for the target audience. Questions involve only one and two digit numbers and the student is able to review concepts, receive further demonstrations, and do additional questions as desired. As the example with moving blocks could be quite helpful, it is unfortunate that the student can not access other such examples.

INSTRUCTIONAL FORMAT DESCRIPTION

The student interaction with the program consists of name/class entry, page turning, menu selections, activity repetition, choosing the error buzzer (Y/N), and entering numerical values for answers to addition problems - all through normal keyboard entries. The user may also be required to change disks.

The data base, for the practice exercises and speed game, appear to contain both one and two digit numbers. All the sums of the digits in the ones column require carrying to the tens column, and tens column addition occasionally results in a sum greater than 100. Questions in the drill section and the speed game section are presented in sets of ten.

Positive feedback is conveyed in graphical and textual modes. Negative feedback consists of text, sound and graphical messages. In the practice section, a second error on a question results in corrective feedback while the correct answer is shown after the third mistake.

Quantitative feedback varies. In the practice section, the student can see an ongoing tally of his or her score. In the speed drill, the student is given a rating according to how quickly the drill was completed. In addition, the time is compared with his or her previous time and comments are made on any improvement or lack of improvement.

Some branches are available. If the user makes three consecutive errors in the practice exercises, he or she is then looped back to see some examples. For students doing poorly in the speed drills (i.e. if more than 30 seconds total was spent on adding the ones or tens), more demonstrations and practice are presented for that one operation.

The rate, sequence and amount are user controlled to a certain degree by inputs, menu selections, and the repeat option. The rate of the speed drill may be specified by the teacher or, if designated, by the student. Amount is controlled by the program as well as by the user. The sequence of the tutorial is controlled by the user who may elect to repeat certain sections or by the teacher who may specify beginning points. The program also controls the sequence through applying branching techniques if errors are made.

INSTRUCTIONAL FORMAT EVALUATION

The student interaction in the tutorial is somewhat passive, with a fair amount of "watching" things happen or turning pages after a pre-set minimum amount of time. As the tutorial is reasonably brief and can be controlled by the user, this should not be a problem. The interaction in the exercises and speed drills is consistent, easy to accomplish and appropriate for the target audience. Inputs required are clearly indicated, colour coded, and must be entered from right to left. It is unfortunate that inputs can not be corrected.

The data base, from which the questions are randomly chosen, appears to be rather large since repeats are not frequent. The feedback techniques are all appropriate and generally non-threatening. The corrective nature of the negative feedback in the practice exercises is very good and well explained.

The branching and the user control capabilities are excellent features as students having difficulty are able to see further examples or may be automatically moved to a remedial unit.

TECHNICAL CHARACTERISTICS DESCRIPTION

The program uses both normal and larger than normal size print in upper and lower case. Colour, sound and graphics are all used. Some of the special effects include animation, flashing, and selective erasing. The digits are colour coded according to their place value. The buzzer which is activated after errors can be disabled.

TECHNICAL CHARACTERISTICS EVALUATION

The displays are generally clear, colourful and effective. The use of colour coded numbers according to their respective place values makes the program easier to use and understand for the youngster. Some displays contain too much text with print that is somewhat small for the lower end of the target audience.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

This program is intended for use by students who have some knowledge of the basic addition facts.

A management system which is accessed by a password is included. It can hold up to 90 students in 6 classes. It allows the teacher to enter the user's name, where the user is to start in the tutorial (or to skip it completely), to enter/delete/view learner files, to change the speed of the challenge levels, reset game times to zero, and to print the progress for one class or for all the learners. The system records at what point the student is in the tutorial and, after the speed drills are started, it records the challenge level and the amount of time in game seconds which were required to finish the most recent drill.

The teacher documentation is a 19 page booklet. The objectives are stated in the introduction. It also includes what one must know before starting, getting started, the format, reinforcement, and where the learner can go from here. A card which summarizes the symbols used for instructions to the user is included.

IMPLEMENTATIONAL SUPPORT EVALUATION

The entry competencies stated are appropriate for the program, although since disks must be changed during the use of the program, it will be very important to teach and stress the importance of proper disk handling in order not to accidentally destroy one of the files.

The management system works as specified. Students are listed alphabetically and the capacity is sufficient. The system is easy to set up and use. It should be noted that the data will not be collected if the student does not place disk #3 in the drive at the end of the session. As such, the need to have the student handle two or three disks may be risky. Alternatively, teacher supervision time may be excessive.

While teacher choices are good (difficulty levels, starting point), the records kept are inadequate. As only the most recent score is maintained, the teacher has no previous records with which to compare scores unless they keep a file of previous score printouts. Another weakness is that the teacher must delete each user file separately instead of having the option to delete a class.

The documentation is easy to follow and understand. The one card for user support material is a handy reminder and allows for a quick review of the symbols if necessary.

SUMMATION

This program has many good features. The tutorial is a very strong point in the program as it works from the concrete to the abstract. The availability of guided practice at the beginning followed by speed drills, the corrective feedback and the branching are all strengths as well. The program is quite motivating and the student can aim for higher goals as his or her response time improves. An adequate number of students can be recorded in a class.

The biggest flaw of the package is that the program is covered on three disks, necessitating the older students handling the disks or taking up teacher time to do the changes for the students. Also, the results in the management system are not informative enough since no previous records (on disk) are available for comparison and user inputs cannot be corrected. However, in spite of these weaknesses, the fine pedagogical development will make the program an effective resource for student new to this level of addition, those needing extra practice, and those requiring review and remediation.

STATUS

"Carrying: Regrouping for Addition" has been authorized as a **SUPPLEMENTARY** learning resource for grades 3 and 4.

PURCHASE INFORMATION

This product may be purchased for $69.95 US (1987, 3 disk school version) from Renaissance Learning Systems at the address provided at the beginning of the report. Note that there is also a 2 disk home version of this program that does not include the management system. Backup copies of the disks can be purchased from the publisher for $30.00 US (1987) for the set of 3 disks. This program may be available locally, check with your software dealers.

Renaissance Learning Systems will replace defective disks within a 12 month warranty period at no charge to the customer. Thereafter, defective disks will be replaced for a minimum charge.

Due to frequent disk interaction, this program can be used on only one computer at a time.

FRENCH GRAMMAR COMPUTERIZED I

DESCRIPTION

Title: French Grammar Computerized I
Version: 1985
Authors: Roger Neff & Tom Whitney
Display Language: English
Publisher: Lingo Fun Inc
Cost: $49.95 US (1987)
Source: P.O. Box 486, Westerville, OH 43081
Tel. #: (614) 882-8258
Subject: French Language Arts
Users: Grades 10 - 12
Topics: Regular & irregular verbs, commands, adjective agreement, direct & indirect object pronouns, numbers
Components: 1 double-sided disk, teacher's guide (3p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor
IBM PC/PCjr, MS-DOS 2.0 or later, 128K, 1 disk drive, monitor
Other Formats Available (not evaluated): TRS-80 Model IV

OBJECTIVES

This program is designed to allow the user to review and practice some twenty basic French grammar concepts.

PEDAGOGICAL CONTENT DESCRIPTION

The program consists of a double-sided disk; with each side containing ten lessons for review and practice of basic grammar and language structure, followed by two review quizzes.

The lessons each consist of two parts: a review for a specific concept and a practice section. Each review is approximately four pages long and the user is able to move forwards and backwards in it. The practice exercises contain from 3 to 9 sets of 10 questions each per lesson, with 88 sets in all. Each review quiz contains 5 sets of 10 questions.

Some of the concepts covered in this program are: subject pronouns; direct object pronouns; indirect object pronouns; "y" and "en" pronouns; regular, irregular, imperative and reflexive verbs; regular, irregular, possessive and demonstrative adjectives; numbers; question words; and comparatives.

PEDAGOGICAL CONTENT EVALUATION

The program reviews a wide range of language concepts making it useful for a wide range of users. The depth is generally sufficient for each of the concepts. There is no real sequence from easy to difficult as each lesson is independent from the other.

The program emphasizes the everyday concepts and structures while mentioning only the frequently seen exceptions. The vocabulary in the questions is consistent with the level of difficulty of the concept being studied and is the standard vocabulary found in the French as a second language textbooks.

The content is accurate and the readability is appropriate for the target audience. The content is presented in a clear manner.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction in the program consists of making menu choices, page turning devices, entering answers from multiple choice questions and one word answers to complete sentences.

The program selects questions randomly from fixed data banks. The student may call up the review component at any time during a set of questions and will be automatically returned to the same place without affecting the number of attempts recorded in the quantitative feedback.

There is textual feedback after every user response. Correct answers receive brief congratulatory messages in French, chosen randomly from approximately six statements while incorrect responses receive brief French messages chosen randomly from five. Symbols are used to help the student identify the type of error which was made. After three incorrect responses the correct answer is given in inverse print. A few exercises provide corrective feedback but only after the correct answer has been entered.

Quantitative feedback is given after every set of questions. The feedback indicates the number of correct responses, the number of incorrect responses, the number of incorrect guesses and a percentage. Should the user answer all ten questions correctly, a graphic reward follows the quantitative feedback.

There are no pre- or post-tests but there are optional quizzes. The criteria for success in the quizzes is 90%, as the congratulatory message is presented only if the student attains at least 90%. No branching is available in this program.

The user controls the sequence through menu choices but, once in any particular exercise, the sequence is controlled by the program. The rate is user controlled at all times. The program controls the amount.

INSTRUCTIONAL FORMAT EVALUATION

The user is actively involved in the program through keyboard inputs. The program is concise in format, clear, and uses controlled vocabulary. The student has the opportunity to review first or to go directly to the practice exercises. It is an excellent feature to allow easy access to the review while doing the exercises but not the quizzes.

The program successfully duplicates the types of written work found in French as a second language classes and provides a variety of levels of difficulty that would challenge most students. Since the majority of answers have to be typed in, a lot of the guessing is eliminated.

The positive and negative feedback is appropriate and the quantitative feedback is informative. The graphic mark-up of the incorrect answers is beneficial to the user as it helps him or her identify the errors.

Larger data banks would have given even greater use of the program for the students as they are not likely to repeat the same exercise more than a couple of times. It is somewhat unfortunate that the questions causing problems are not repeated at some time during the exercise.

The quizzes could be used as a means of evaluation as they accurately reflect the content of the exercises.

The types of controls in the program are appropriate.

TECHNICAL CHARACTERISTICS DESCRIPTION

The text is written in normal size upper and lower case letters. All the necessary special French characters can be generated by the program. "French Grammar Computerized I" uses inverse highlighting, selective erasing and symbols to identify types of errors. There is no colour or sound used in the program but there are simple graphics for rewards. A prompt indicates where an answer is required. Instructions appear at the top of the screen while help information is located on the bottom.

TECHNICAL CHARACTERISTICS EVALUATION

The screen displays are clear, easy to read and suitable for the target audience. The program effectively uses highlighting for emphasis. The access to the special French characters in important but tends to be cumbersome.

The program is inconsistent in requiring a capital letter for the first word in a sentence. The lack of aural feedback makes the program suitable for classroom use. More graphic rewards would be motivating. The user can easily exit the program and return to the main menu. This program appears to be basically bomb-proof.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The entry competencies are not specified but the user should have some knowledge of the language concepts prior to using the program.

There is no management system nor any user support materials included. The documentation is three pages long. It describes the program usage, the special features and lists the titles of the 20 lessons included.

IMPLEMENTATIONAL SUPPORT EVALUATION

It is unfortunate that no management system has been included to provide information to the teacher by recording the student's name, the lessons worked on and the results obtained.

The documentation would be improved if it included a chart of the symbols used in the graphic mark-up of incorrect answers, and listed the sub-topics in the lessons. The disk can easily be used by a teacher with minimal computer competency and does not demand excessive teacher time.

APPLE - IBM VERSIONS

This report has been based on an evaluation of the Apple version. A review of the IBM version has revealed identical content in the program. Although the IBM version makes use of colour, a colour monitor is not essential. The IBM version also has the advantage of presenting quantitative feedback when a student chooses to exit an activity early. The required DOS files can be transferred onto the "French Grammar Computerized I" disk to make it self-booting.

SUMMATION

The major strengths of this program are: its great variety of exercises for each concept being reviewed, the variety of questioning techniques, the easy access to the review while doing the exercises but not during the quizzes, and its effective duplication of the types of exercises found in courses for French as a second language. Other strengths include the brief period of time required to complete an exercise, the fact that the program limits itself to the fundamental structures and grammar, and the program's ease of use.

The major weaknesses of the program are limited data banks and the lack of a management system. Other weaknesses include the lack of proper sequence within an exercise, objectives that are not clearly stated, a somewhat cumbersome method of entering the French accents, no question numbers, and an excessive use of English.

STATUS

"French Grammar Computerized I" has been authorized as a **SUPPLEMENTARY** learning resource for grades 10 to 12.

PURCHASE INFORMATION

This program is available for $49.95 US (1987) at the address provided at the beginning of the report, with backup disks available at $15.00 US each. A site license can be purchased for $150.00 US (1987) which allows the user to make unlimited copies of the program within the designated school district. This program may also be available locally, check with your software dealers.

The publisher provides a 90-day replacement warranty on defective disks. After this period, defective disks can be replaced for a fee of $15.00 US each.

Due to disk interaction, this program can be used on only one computer at a time.

GEARS

DESCRIPTION

Title: Gears: Strategies in Problem Solving
Authors: Robert Kimball & Dave Donoghue
Publisher: Sunburst Communications
Source: P.O. Box 3240, Station F, Scarborough, ON M1W 9Z9
Subject: Problem Solving
Topics: Developing the problem solving strategies of prediction & analysis
Components: 1 disk with backup, teacher's guide (26p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor
Other Formats Available (not evaluated): IBM PC/PCjr, Tandy 1000, Commodore 64, TRS-80 Color

Version: 1985
Display Language: English
Cost: $87.00 US (1988)
Tel. #: 1-800-247-6756
Users: Grades 7 - 9

OBJECTIVES

This program is designed to:

1. Put students in situations where they have to analyze a problem in order to identify a solution.
2. Allow students to discover mathematical formulas or build a model which will help them predict an outcome.
3. Increase skills involving division of decimal numbers.

PEDAGOGICAL CONTENT DESCRIPTION

The three programs contained on this disk are designed to promote a student's acquisition of problem solving skills through experimentation with the properties of gears. Three playing levels are offered:

1. BUILD A GEAR TRAIN - Students combine two to four gears of various sizes (5, 7, 9, 11 and 13 teeth) in different combinations to build a gear train. Two boxes located under the gear train indicate the number of revolutions of the first and last gears. Students are encouraged to experiment until they can predict the cause/effect relationships of the gear train.
2. SOLVE A GEAR PUZZLE - Given a choice of easy or hard problems, the computer tells the student how many times the last gear in the train must turn. The student then attempts to build a train that produces the desired result. In easy problems, the first gear revolves 10 times; in hard problems, the student may determine the number of revolutions of the first gear.
3. BUILD A GEAR TRAIN - Students are challenged to build a gear factory that will fill orders determined by the computer. The direction the last gear turns determines what type of product the factory makes; the number of complete revolutions the last gear makes determines the output. The difference between easy and hard is the same as in #2 above.

PEDAGOGICAL CONTENT EVALUATION

Content range is effective in achieving the program's intents. An ample variety of problems at varying levels of difficulty is available. The choice of easy or hard problems ensures adequate challenge to all users. Since the programs are sequenced in difficulty, students should not proceed to levels 2 or 3 until they have firmly grasped the cause/effect relationship of the gear train portrayed in level 1. The teacher will have to set up an appropriate sequence of learning activities (e.g. a series of designed experiments) to ensure that this knowledge is gained before advancement to levels 2 or 3. Allowing students to experiment on their own may not be appropriate for all students.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of menu selection and using the arrow keys to select gear train components. Level 2 and 3 problems present randomized questions for the student to solve. Learning takes place by analysis: students select the size and number of gears, observe the results, and make the necessary changes to bring about the desired result. Correct answers elicit a positive, encouraging remark; while an incorrect answer yields a response such as "Wrong in direction and number". In both cases animation of the gears in revolution is depicted, the number of revolutions completed by the first and last gear is presented for student analysis, and students are given the option of trying the problem again.

INSTRUCTIONAL FORMAT EVALUATION

The three games on this disk provide unobtrusive interaction in three progressively difficult cause/effect type problems. Succinct directions are optionally available at the beginning of each program. The user has ample opportunity to experiment, manipulate factors, and predict solutions. A knowledge of multiplication, division and rounding (to one place) of decimals is pre-supposed and it would be advantageous if students had some prior classroom exposure to the interrelationships of gears in motion.

The visual display of the gears in action enhances the limited feedback that is provided. Teachers should note that no corrective feedback is provided so students who have difficulty in determining the general formula or using it to solve problems will receive no help from the program.

A few of the questions lack clarity and may need initial teacher explanation. For example, "What will the last gear do?", does this refer to the number of rotations it will make or the direction of its rotation? Also, since there is no provision for performing calculations on screen and as there is no record kept of the outcome of previous gear trains, students would be advised to work with pencil and paper or calculator in hand.

TECHNICAL CHARACTERISTICS DESCRIPTION

This program utilizes combination upper/lower case lettering; coloured, animated graphics; and optional sound. An exit route is available in all programs.

TECHNICAL CHARACTERISTICS EVALUATION

The clear graphic portrayal of the gears in motion aids student understanding; however, the animations, particularly in level 3, can be slow. The readability of the text and numbers could be improved by choosing a larger type font.

The fact that each segment of the disk is loaded individually into memory limits program usage to one disk per computer.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The 26 page teacher's guide includes sections on computer usage, program objectives, program descriptions, a fact sheet on gears, classroom implementation/follow-up suggestions, and two worksheets dealing with gear ratio and gear rotations.

IMPLEMENTATIONAL SUPPORT EVALUATION

The documentation is clear and comprehensive. The gears fact sheet and worksheets are useful student supplements.

SUMMATION

This program makes effective use of graphics to present gear problems which encourage the development of student problem solving skills. Active teacher intervention will be necessary in setting up appropriate learning strategies to ensure students grasp the initial concepts and in providing assistance for students having difficulty.

STATUS

"Gears: Strategies in Problem Solving" has been authorized as a **SUPPLEMENTARY** learning resource for grades 7 to 9.

PURCHASE INFORMATION

This product may be purchased for $87.00 US (1988) from Sunburst Communications at the address provided at the beginning of this report. Lab packs, containing one teacher's guide and 10 program disks, are available for $260.00 US (1988). This product may also be available locally, check with your software dealer.

The publisher provides a lifetime warranty on any program component that is lost or damaged during normal school use.

Due to frequent disk interaction, this program may be used on only one computer at at time.

IN SEARCH OF WARGO: ZANDAR III & IV

DESCRIPTION

Title: In Search of Wargo: Zandar III & IV
Authors: Janis Morariu et al
Publisher: Society for Visual Education (SVE) Inc
Source: c/o The Learning Tree, 6500 Viscount Rd, Mississauga, ON L4V 1H3
Subject: Problem Solving
Topics: The conjunctive rule of reasoning, the "and" relationship
Components: 2 disks, teacher's guide (11p.)
System Requirements: Apple II+/IIe/IIc, 48K, 1 disk drive, monitor
Note: This disk will not operate on an Apple IIgs
Other Formats Available (not evaluated): Available only in Apple format

Version: 1984
Display Language: English
Cost: $104.00 (1987)
Tel. #: (416) 673-2644
Users: Grades 4 - 6

OBJECTIVES

This program is designed to motivate students to practice thinking skills, to tutor students in a logical reasoning process that will find an "unknown" containing two elements, and to challenge students to apply the logical reasoning process in a game format.

PEDAGOGICAL CONTENT DESCRIPTION

This program consists of two disks which guide students through the process of logical reasoning by teaching hypothesis-forming and hypothesis-testing strategies necessary to find two elements (out of nine) which make up an unknown. In the first disk, "The Story of Wargo" sets the scene for the fantasy that motivates the student to find the unknown elements of the "Magic Key". The student's goal is to catch Wargo by correctly guessing which two clues make up the "Magic Key". The tutorial practice breaks the complex thinking skills into a step-by-step process consisting of five steps. These steps are: identifying the elements and their relationship, gathering information, taking notes about the information gathered, forming a hypothesis, and testing the hypothesis. Each step of the process is practised in a tutorial format.

The second disk uses a game format where the students apply the steps of the "and" logic reasoning skills they have learned but with much less guidance. In this format, the students use the worksheet provided in the documentation to keep track of eliminated clues.

PEDAGOGICAL CONTENT EVALUATION

The range of content is appropriate to the target audience. There is a suggested sequence for the implementation of the program beginning with the tutorial, going to guided practice and ending with practice in a game format. The guided development of logical processing in decision making is effective. The step-by-step procedure is thoroughly presented with adequate practice in a tutorial format. Additional practice, involving the application of the reasoning skills with less direction, is given on the second disk in a motivating fashion. Appropriate instruction and practice are provided in the tutorial format to assist the student to develop logical reasoning skills. However, some of the younger students may require initial assistance with the necessary strategies to solve the game. Moreover, it would be desirable to have a more advanced game to challenge students who are able to master the present game.

The content is well suited to the media and the program is motivational to the students.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of menu selection; name entry; reading and page turning in "The Story of Wargo"; inputting letters A, B, or C or numbers for responses; pressing RETURN to confirm a response; using "?" to indicate that the user wishes to enter the solution; and pressing ESC to return to the menu.

The patterns are randomly generated, but the student decides upon an analysis strategy before making choices and thus varies the path to the solution.

Immediate feedback is provided for every student response in the tutorial format. Correct choices result in a congratulatory textual message or the repetition of the correct answer. During the game, points are awarded depending upon the efficiency of the student's elimination of clues and success in solving the problem. Brief graphic and audio feedback is given when the problem has been solved. If the problem was not solved correctly, the correct answer is provided and all points are lost. The student is encouraged to try again.

No pre- or post-tests are provided in this program. There is no specific branching for remediation; however, a student may choose to repeat the tutorial format practice and then go back to try the game.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is appropriate with the student being actively involved in most of the program. Student inputs are clearly indicated on the screen. The questioning techniques are suitable and the game format is motivational.

Positive feedback is appropriate and effective. It is noted that negative feedback during the game consists solely of telling the student what the correct answer should have been, no explanation is provided. Teachers should monitor the progress of their students to prevent frustration in those who have not grasped the necessary concepts or strategies. It would also be useful to have a record kept of a student's scores on different games, and perhaps of the highest score, so a student will have a goal beyond playing the three games.

TECHNICAL CHARACTERISTICS DESCRIPTION

The program utilizes larger than normal print with both upper and lower case letters. Colour, graphics and sound are used, but sound is an option.

TECHNICAL CHARACTERISTICS EVALUATION

Screen layout is well designed with suitable text size. Graphics are used effectively and add to the interest and motivation of the program. Although the graphics are more attractive in colour, the program can be used effectively on a monochrome monitor. It helps to have user instructions on the screen at all times. The program is easy to use and appears to be reliable under normal use. However, the program can hang up if the game is played and the user then wishes to practice. Also, use of the program would be facilitated by having the disks labelled "Zandar III" and "Zandar IV" as the program identifies them by these names rather than by "The Dragon' Door" and "In Search of Wargo".

IMPLEMENTATIONAL SUPPORT DESCRIPTION

No entry competencies are specified and no management system in included in this program.

The teacher documentation includes the goals, overview, instructional design, grade levels, suggested order of implementation, and operating instructions. A "Quick Reference Sheet" is provided for an easy lesson preview. A reproducible worksheet is provided for eliminating false clues when using the game.

IMPLEMENTATIONAL SUPPORT EVALUATION

The documentation is concise, well organized and easy to follow. The worksheet is very useful in organizing information during the games. If the order of implementation which is suggested in the documentation is followed, students will require minimal supervision. It is noted that the program can be used on only one computer at a time.

SUMMATION

The major strength of this program is the good tutorial presentation and the guided practice which will assist the student in hypothesis development and decision making. Also, the game format is motivational and supplies an opportunity for the student to apply the reasoning skills that are being developed. The graphics add interest to the program. The program is easy to operate and should require minimal teacher supervision.

Minor weaknesses include the technical problem with the program hanging, the inability to record student scores, the high cost of implementing it in the classroom, and the lack of encouragement for a student to go further (no harder games, no honor roll of scores, etc.).

STATUS

"In Search of Wargo: Zandar III & IV" has been authorized as a **SUPPLEMENTARY** learning resource for grades 4 to 6.

PURCHASE INFORMATION

This product may be purchased from The Learning Tree for $104.00 (1987) at the address provided at the beginning of the report. Backup disks are available for $27.00 for a set of two. The program may be available locally, check with your software dealers.

Defective disks will be replaced free of charge within 6 months of the purchase date.

Due to frequent disk interaction, this program can be used on only one computer at a time.

INTEGRATED ACCOUNTING

DESCRIPTION

Title:	Integrated Accounting (Education Version 3.20)	**Version:**	1986 Ver. 3.20
Author:	None Cited	**Display Language:**	English
Publisher:	Bedford Software Ltd	**Cost:**	LRDC Buyer's Guide
Source:	201, 4180 Lougheed Highway, Burnaby, BC V5C 6A7	**Tel. #:**	(604) 294-2394
Subject:	Business Education	**Users:**	Grades 10 - 12
Topics:	General ledger, accounts receivable, accounts payable, payroll, job costing, inventory		
Components:	1 disk, user's guide (163p.), accounting manual (105p.), summary of menus reference card		
System Requirements:	IBM PC, PC-DOS 2.0 or later, 256K, 1 or 2 disk drives, monitor, printer		
Other Formats Available (not evaluated):	Most IBM compatibles		

OBJECTIVES

This program is designed to:

1. Provide the necessary accounting background information to set up the books of a small business.
2. Provide a smooth transition from manual to computerized accounting.
3. Provide integrated accounting functions including general ledger, accounts receivable/payable, payroll, job costing and inventory.

GENERAL LEDGER DESCRIPTION

Bedford Software publishes both a commercial version and an educational version of its integrated accounting program. The chief differences between the two versions are:

1. The educational version will not accept dates later than January 1, 1986; this effectively prohibits a copy being bought at the lower educational price and then being used illegally for business purposes.
2. The education version does not include a separate tutorial disk. Instead the tutorial data files are contained on the student disk with the program files.

This evaluation is based upon the educational version.

The user is provided with a predefined chart of accounts which may be modified, added to or deleted as required during the set-up process. Detailed printouts of individual accounts, a chart of accounts, ledger accounts, or a summary of accounts are available either on screen or in hard copy. Minus signs are used to denote credit accounts, and commas are automatically inserted into dollar amounts when the return key is activated. General ledger accounts are listed by account number; subsidiary accounts are listed alphabetically. Double entry is automatically invoked, accounts are verified, and any field can be corrected before permanent entry is made. Once equality status is achieved, journal entries are automatically posted to all accounts. A running total of the equality of debits and credits is shown on the screen for each transaction. Screen displays include the balance sheet, income statement, and separate invoice/payment journals for payables and receivables. Detailed printouts of ledger accounts, which can be obtained for any specified time during the fiscal period, show aging information.

The program generates a variety of reports including a trial balance, a balance sheet, an income statement, a payroll summary, and a schedule of accounts receivable/payable. Income statements can only be printed for the company as a whole; however, a breakdown of expenses for each project can be obtained by printing the project module. (At the time of journal entry, expenses can be assigned to particular projects). Reports can be printed at any time; however, adjusting entries must be entered at the end of the fiscal period for up-to-date information using the accrual method.

The payroll module automatically updates the employer's financial statements and the employee records each time a payroll transaction is completed. The number of pay periods per year is established when setting up the module.

GENERAL LEDGER EVALUATION

The program is designed to allow for easy transfer from manual accounting to automatic accounting and it provides an excellent framework from which to develop both general ledgers and journals. In the tutorial mode, the left arrow key is used to modify accounts on a temporary basis; the use of the return key signals final acceptance. Dollar signs are not accepted nor are they automatically printed by the program. It takes some initial adjustment to remember that. In an effort to limit the program's commercial value, entry dates cannot be later than January 1, 1986.

Students must have a thorough knowledge of debit and credit to use the program efficiently, but should an error be made, the documentation is such that an error trace can be made from the journal printout and a correcting entry made. The concept of increasing or decreasing an account's balance is used. Prior to posting, a complete journal entry can be shown on screen in debit and credit form.

The standard accounting reports can be easily generated using the pull-down menu selections. Reports follow standard Canadian accounting practice and are clear and precise. A continuous comparison of the equality of debits and credits is displayed on the lower part of the screen. The fact that data which does not balance will not be accepted by the program proves to be a good verification tool. Four other useful features offered by the program are: a built-in check for the logical arrangement of accounts, an automatic calendar for supplying dates, a job cost analysis report, and an inventory module.

Unfortunately, the program does not retain data from past years, thus comparison printouts cannot be displayed. However, the program allows the export of financial statements to spreadsheets and word processing programs and comparisons could be accomplished using the exported spreadsheet files.

ACCOUNTS RECEIVABLE/PAYABLE DESCRIPTION

The program will generate a detailed sales report or a summary display of any customer's account; however, it is not set up to print detailed customer profiles nor to calculate service charges or print comparisons by account or salesperson. Customer lists are automatically alphabetized and include name (up to 26 characters), address, city, province, postal code, and total amount owing/paid. The program will optionally print the company name/address on computer form invoices, cheques and statements as well as print or export name and address labels.

The accounts payable module prints a schedule of accounts payable, prints aging reports, and automatically keeps track of the earliest dated invoice and earmarks this when payment is activated. Automatic cheque writing may be invoked using prepared business stock paper to cover payment of up to 24 invoices at one time. The program can be set to retain customer/vendor history after invoices have been fully paid. The receivables module will also print invoices. Aging periods can be set by the user.

ACCOUNTS RECEIVABLE/PAYABLE EVALUATION

Standard sales invoices and payments are easy to enter and customers can be added at any time provided they have a zero balance. Sales returns, allowances and discounts must be programmed in a roundabout manner using a dummy invoice with a minus sign at the end of the account. The lack of an automatic service charge calculation is a program drawback.

The program is set up to use personalized, pre-printed forms. While statements can be run on plain paper, they will lack the company name and other relevant data.

A major flaw of the program is the ability to print cheques automatically without prior posting to any journal. The documentation suggests that if the user pushes the escape key after printing a cheque, the cheque information will not be recorded. For security reasons, it would be considerably safer for the data to be posted prior to the printing of the cheque. However, security can be provided by a password.

PAYROLL DESCRIPTION

The payroll ledger for each employee is entered by use of a pull-down menu from the payroll section of the program. Information entered by the user includes employee name, address, S.I.N. number, the number of pay periods, the province (so the appropriate deduction formula can be accessed), whether or not the employee is insured, holiday pay and whether or not it is retained, income tax deduction, CPP required, plus entry of regular pay and overtime rates. The Quebec Relevé 1 payroll form can be printed. The program performs automatic calculation of deductions entered plus income tax, UIC and CPP deductions. If pre-printed forms are used, cheques will be automatically numbered and printed. The program allows the user to print T4 forms. The program will print or export name and address labels.

PAYROLL EVALUATION

The payroll section is easy to use, scan and modify. The built-in provincial tax tables can be easily updated. The automatic calculation of tax is quick and efficient, and the detailed printout on cheque stubs is fully informative.

As mentioned in the accounts payable section, the program will print cheques automatically without prior posting. Conceivably a cheque could be entered, the escape key could be pressed, and the transaction would go unrecorded. However, the user must confirm the action after the escape key is pressed and has another chance to post the cheque or escape indicating that they do not want the cheque used. The publisher has also provided password security for this module as well as all the other modules in the program. Also, the program uses the formula on which provincial tax tables are calculated rather than directly accessing the tax tables. This results in amounts that may vary slightly from the printed tables, however the variance is negligible.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The documentation consists of an accounting manual and a user's guide. The accounting manual provides the novice user with an introduction to accounting. The user's guide provides specific instructions on converting from manual to computerized accounting, entering information, and use of the various modules in the Bedford system. A flowchart depicting a summary of the various menus is available for quick reference. An instructional workbook for student use is available but has not been evaluated at this time.

IMPLEMENTATIONAL SUPPORT EVALUATION

The documentation is well written and assumes no prior knowledge of accounting or computing. The texts offer numerous illustrations to correspond with expected screen output. The documentation provides good models to follow and walks a user through first time set-up procedure.

SUMMATION

This program offers the salient strength of being initially written for the Canadian user, not adapted for the Canadian user from an American prototype. The use of pull-down menus makes it easy to move from module to module, and the well-written documentation provides a good background both to general accounting and automated accounting. The program offers good screen prompts, quick response time, and its modules can be used independently of one another. The fact that the publisher offers yearly updates is another positive feature.

The weaknesses of this program are minor in relation to its strengths. The automatic cheque writing function could create a situation in which cheques are created but not recorded. It is annoying to remember that, in the educational version, all dates must be earlier than January 1, 1986. Finally, the use of the left arrow key to accept information (rather than the return key) is unconventional.

STATUS

*Integrated Accounting (Education Version 3.20) has been authorized as a **BASIC** learning resource for grades 10 to 12.

PURCHASE INFORMATION

Alberta schools may purchase this product from the Learning Resources Distributing Centre at the discount provided for basic educational resources. Contact the LRDC for pricing and warranty information. The program may also be purchased from Bedford Software for $249.00 for the initial package with additional components available for: students disks ($12.00 each), user's guides ($18.00 each) and accounting manuals ($14.00 each). Program updates are available, whenever payroll deduction formulas change, for $12.00 per disk and $18.00 per user's guide.

A sixty day warranty is available on materials and operation.

Due to frequent disk interaction, this disk can be used on only one computer at a time.

JE CONJUGUE

DESCRIPTION

Titre: Je conjugue
Auteur: Aucun cité
Éditeur: Éditions AD LIB. Inc
Source: 220, Grande-Allée est, Bureau 960, Québec, QC G1R 2J1
Matière: Français
Sujets: Conjugaison des verbes
Composantes: 1 disquette, guide d'utilisation (29p.)
Matériel requis: Apple II+/IIe/IIc/IIgs, 48K, 1 unité de disque, moniteur
Disponibilité sur d'autres ordinateurs (pas d'évaluation): Disponible sur format Apple seulement

Version: 1985
Langue d'affichage: Français
Coût: 69,95 $ (1988)
Tél. #: (418) 529-9676
Utilisateurs: 4e à 9e année

OBJECTIFS

Ce programme est conçu pour permettre aux élèves d'améliorer, d'une manière agréable, leurs connaissances sur la conjugaison des verbes de la langue française.

DESCRIPTION DU CONTENU PÉDAGOGIQUE

"Je conjugue" contient cinq activitiés. Les quatre premières sont pour l'élève. Elles sont: l'exploration, la pratique, le test et la compétition. Le programme traite seulement des temps simples. Aucun verbe réfléchi n'est inclus. La cinquième activité, "les options", peut être utilisée par l'enseignant/e ou par l'élève.

Pendant l'exploration, l'élève peut demander au logiciel de conjuguer presque n'importe quel verbe de la langue française, en indiquant le mode/temps et l'infinitif du verbe qu'il désire. Il obtiendra aussitôt la réponse.

Dans l'activité, "la pratique", le programme choisit un verbe au hasard, à partir d'une banque de données spécifiée par l'enseignant/e ou l'élève. L'utilisateur doit taper la bonne réponse. Seulement une question est présentée à la fois.

L'activité suivante est "le test". Ici, le programme choisit les questions au hasard. L'élève doit donner la réponse juste. Dix questions sont présentées par groupe.

L'activité, "la compétition", est pour deux élèves ou deux groupes d'élèves. Un premier groupe choisit une question et le deuxième groupe doit fournir la réponse. Si ce dernier groupe ne peut pas donner la bonne réponse, le premier groupe doit répondre à sa propre question. L'activité se termine quand une équipe a accumulé dix points.

La dernière partie du programme permet à l'enseignant/e ou à l'élève de choisir à l'avance les groupes de verbes, les temps/modes et les personnes qui forment la banque de données pour le programme.

ÉVALUATION DU CONTENU PÉDAGOGIQUE

L'étendue et la richesse du programme sont appropriées et peuvent être ajustées en tout temps par l'enseignant/e ou l'élève, à travers les "options". C'est dommage qu'aucun temps composé n'a été inclus dans le programme. Il n'y a pas de séquence dans la difficulté des questions présentées. Les activités sont arrangées dans un ordre de progression logique. Toutefois, l'élève n'est pas obligé de les travailler dans cet ordre.

Les affichages de "Je conjugue" sont clairs et faciles à lire. Les informations semblent être exactes. S'il y a possibilité de deux réponses justes, comme par exemple: "payer", 1re personne, indicatif présent, les deux réponses "paie" et "paye" seront affichées. A cause de la programmation de "Je conjugue" qui permet de travailler avec presque tous les verbes, dans les sections "exploration" et "compétition", il est aussi possible de conjuger des verbes qui n'existent pas. Par exemple, si l'élève désire avoir la présentation du verbe "jouer" et, par accident, tape "ouer", le programme va en fait le conjuger comme s'il existait. La même chose s'applique pour "trager", "utrager" et "otrager" quand l'élève veut écrire "outrager". Par contre, le programme n'acceptera pas "eindre" pour "peindre".

La valeur éducative du programme serait améliorée si le programme fournissait des explications grammaticales sur la conjugaison des verbes.

DESCRIPTION DES TYPES D'INTERVENTION PÉDAGOGIQUE

L'interaction de l'élève avec le programme comprend les étapes suivantes: faire des sélections de menu avec la touche "ESC" et les flèches, entrer des réponses d'un mot, corriger une entrée avec la touche "DELETE", appuyer sur "RETURN" pour faire accepter une réponse, appuyer sur "SHIFT et ?" pour se faire poser une question dans la "pratique" et appuyer sur "-" pour se faire donner la réponse dans les 2 et 3 activités du programme.

Dans "l'exploration" et "la compétition", l'élève détermine la question en indiquant l'infinitif, le mode/temps et la personne. Dans les activités "pratique" et "test", le programme choisit au hasard les questions, d'après les spécifications et la pondération indiquées dans les "options", choisies par l'enseignant/e ou l'élève.

Une rétroaction positive ou négative est fournie dans les activités "pratique", "test" et "compétition". Le programme indique par un "oui" ou un "non" l'exactitude de la réponse. Pour la "pratique", l'élève peut essayer autant de fois qu'il le désire, ou il peut demander la réponse en appuyant sur la touche "-". Dans les activités "test" et "compétition", la bonne réponse est suivie par un "oui", tandis qu'une réponse fausse reçoit un "non" suivi par la bonne réponse. Le nombre de réponses justes et le nombre total de questions qui ont été demandées sont continuellement affichés à l'écran pendant "le test". Durant "la compétition", ce sont les points accumulés par chaque équipe qui sont affichés à l'écran.

Il n'y a aucun pré-test inclus dans ce programme. L'activité "test" sert de post-test; un point est donné pour chaque réponse juste. Dans la "compétition", un point est donné pour chaque bonne réponse sauf quand, non seulement l'adversaire ne peut pas répondre à la question, mais aussi l'équipe qui l'a posée. Dans ce cas, l'adversaire reçoit deux points, afin de décourager la pratique de demander des questions pour lesquelles on ne sait même pas les réponses.

Le programme n'a pas de branchement.

La vitesse du programme est contrôlée par l'utilisateur. La séquence des questions dans "l'exploration" et "la compétition" est contrôlée par l'utilisateur, tandis que le programme contrôle la séquence du "test" et de "la pratique", d'après les spécifications de l'enseignant/e ou de l'élève. Le programme contrôle le nombre de questions dans "le test" et "la compétition" mais l'élève peut terminer l'activité en tout temps. L'élève contrôle le nombre de questions dans "l'exploration" et "la pratique".

ÉVALUATION DES TYPES D'INTERVENTION PÉDAGOGIQUE

L'interaction est efficace et répond bien au but du programme. L'élève doit entrer la réponse correctement, avec tous les caractères français spéciaux, ce qui rend l'évaluation des réponses exacte. L'élève peut facilement corriger ses réponses ou ses choix. Le programme ne permet pas à l'élève d'ajouter des espaces vides dans la réponse.

Les techniques de questionnement sont appropriées au contenu. Les questions sont choisies efficacement et au hasard dans "le test" et "la pratique". L'activité, "les options" est avantageuse. Elle permet à l'enseignant/e ou à l'élève d'individualiser "la pratique" et "le test", en changeant le degrée de difficulté et la pondération de certains types de questions, d'après les besoins spécifiques des utilisateurs. On ne permet qu'un essai dans "le test" et "la compétition", pour trouver la bonne réponse. Mais comme l'élève devrait commencer avec "la pratique", qui lui permet autant de chances que nécessaire, ce module sert de vrai pratique.

La rétroaction est limitée à "oui" ou "non" et la bonne réponse. L'emploi d'une variété de mots ou d'expressions faisant parti de la rétroaction pourrait être plus encourageant pour l'élève. C'est dommage qu'aucun graphique n'a été utilisé conjointement avec des messages écrits afin de rendre le programme plus motivant à l'élève. De plus, la valeur éducative du programme serait améliorée s'il fournissait une liste, à la fin de chaque module, des verbes qui ont causés des difficultés. L'élève pourrait par la suite, faire une révision de ces verbes en utilisant l'activité "la pratique".

C'est aussi dommage que dans "la pratique", l'élève n'a pas accès au branchement qui aurait permis de revoir les régles de conjugaison et aurait fourni plus de pratique avec le même genre de questions.

Le fait que le programme est sans contrainte de temps devrait le rendre intéressant pour une grande variété d'élèves et de situations d'apprentissage. Les types de contrôle dans le programme sont appropriés et efficaces.

DESCRIPTION DES CARACTÉRISTIQUES TECHNIQUES

"Je conjugue" utilise des caractères de format régulier, des lettres minuscules et majuscules et tous les caractères français spéciaux et nécessaires. Le tableau des lettres accentuées est toujours affiché au bas de l'écran. La mise en évidence inverse est utilisée par le programme. Une ligne clignotante sert à indiquer quand une réponse doit être entrée. Pendant "la compétition", les fléches de droite et de gauche servent à indiquer à qui le tour de poser une question. L'éclairage de la boîte des points sert à indiquer à qui le tour de répondre à la question. Avec un moniteur couleur, le texte apparaît en blanc, rose et vert. Il n'y a aucun graphique. Un bip se fait entendre pour indiquer qu'on a appuyé sur une mauvaise touche. Deux petits bips indiquent la fin d'un "test" ou d'une "compétition".

ÉVALUATION DES CARACTÉRISTIQUES TECHNIQUES

Les affichages à l'écran sont faciles à lire, exacts, et appropriés, mais un peu tassés dans "l'exploration". Le fait que tous les caractères français spéciaux sont nécessaires est excellent. Les caractères français sont faciles d'accès à travers les chiffres, *, + et /.

La transition entre les affichages est efficace. La mise en evidence est bien employée pour mettre en valeur. Le curseur clignotant et les flèches aident l'élève à savoir quand une réponse est demandée et à qui le tour. L'inclusion de quelques graphiques aurait rendu le programme plus intéressant pour les élèves. Le son pourrait être utilisé plus efficacement. Le chargement initial est lent; il faut attendre plus d'une minute. Le programme peut être utilisé efficacement sur un moniteur monochrome. Après une introduction initiale, l'élève peut utiliser ce programme facilement et sans l'aide de personne. Le programme est fiable et sans piège pour l'emploi normal dans une salle de classe.

DESCRIPTION DU MATÉRIEL D'APPUI

Aucune compétence d'entrée n'est spécifiée mais l'élève devrait connaître les régles de conjugaison pour les verbes français avant d'utiliser le programme.

Le programme n'a pas de système de gestion mais il a des "options" qui permettent de contrôler les questions présentées dans "la pratique" et "le test". Les "options" permettent à l'enseignant/e ou à l'élève de choisir; le(s), temps/mode(s), les verbes avec des terminaisons spécifiques, les verbes réguliers/irréguliers, les verbes auxiliaires, la(les) personne(s) i.e. singulier et/ou pluriel, pour lesquelles l'élève doit fournir les réponses. L'enseignant/e ou l'élève peut aussi indiquer une pondération inégale pour certains types de questions.

Un guide d'utilisation de 29 pages est inclus. Il contient une table des matières, les objectifs généraux, de l'information sur chaque activité du programme avec des exemples des affichages à l'écran, des explications pour les messages qui peuvent apparaître à l'écran pendant l'emploi du programme, et un résumé des commandes.

L'emsemble ne comprend aucun matériel de soutien pour l'élève.

ÉVALUATION DU MATÉRIEL D'APPUI

L'enseignant(e)/l'élève a suffisamment de contrôle sur le programme avec "les options". C'est facile de préparer un devoir individualisé mais, comme les spécifications ne peuvent pas être sauvegardées sur la disquette, il doit être spécifié chaque fois que le programme est chargé. C'est dommage qu'il n'y a pas de système de gestion pour enregistrer les résultats des élèves, au moins pour "le test". La valeur éducative du programme serait améliorée si les forces et les faiblesses des élèves étaient identifiées. L'élève pourrait aussi utiliser d'avantage "l'exploration".

La documentation est claire, facile à lire et contient la plupart des informations nécessaires. L'inclusion d'une liste des verbes ou des groupes de verbes irréguliers qui sont inclus dans "les options" aurait été utile pour l'enseignant/e.

Le programme est facile à utiliser. Il requiert un minimum de manipulation d'équipement. L'enseignant/e aussi bien que l'élève ont besoin de très peu de connaissances informatiques. Peu de temps de préparation est nécessaire de la part de l'enseignant/e afin d'utiliser ce programme dans une salle de classe.

SOMMAIRE

Les points forts de "Je conjugue" sont sa capacité d'accepter presque tous les verbes à n'importe quel mode, temps simple et à toutes personnes pour lesquelles se conjugue le verbe; les quatre différentes activités pour l'élève; la flexibilité créée à travers "les options" pour préparer des devoirs personnalisés avec la pondération désirée; et les explications dans la documentation qui sont faciles à comprendre et accompagnées des affichages à l'écran.

Les grandes faiblesses du programme sont le manque d'un système de gestion pour enregistrer les progrès des élèves et l'identification de leurs erreurs; l'absence, dans la documentation, d'une liste des verbes ou des groupes de verbes irréguliers; et le fait qu'il n'y a pas de révision des régles de la conjugaison des verbes français.

STATUT

Ce programme "Je conjugue", est reconnu comme ressource pédagogique de statut **"SUPPLÉMENTAIRE"** pour la 4e à la 9e année.

ACHAT

Ce programme est disponible des Éditions AD LIB. Inc., à l'adresse ci-haut, au coût de 69,95 **$** (1988). Une disquette de rechange par programme peut être acheté pour 15,00 **$**. Il est aussi possible d'acheter une licence pour 150,00 **$** qui vous donne droit à l'emploi et la reproduction illimité, à l'intérieur d'une école. Les disquettes fautives sous garantie seront remplacées, sans frais, dans les 90 jours suivant l'achat. Par la suite, elles seront remplacées pour 15,00 **$**.

Même si le programme charge complètement dans la mémoire vive de l'ordinateur, l'acheteur ne peut l'utiliser que sur une seule machine à la fois. Il a toutefois la possibilité d'acheter une licence multiusage l'autorisant à utiliser ce logiciel sur plusieurs ordinateurs en sa possession, y compris sur un système à disque partagé.

MAGIC PIANO

DESCRIPTION

Title: Magic Piano
Author: Alan Sagan
Publisher: EduSoft Inc
Source: P.O. Box 2560, Berkeley, CA 94702
Subject: Music
Topics: Music fundamentals, composing
Components: 1 disk, user's guide (28p.), music workbook (63p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor, printer (optional)
Other Formats Available (not evaluated): Available only in Apple format

Version: 1984
Display Language: English
Cost: $49.95 US (1987)
Tel. #: (415) 548-2304
Users: Grades 2 - 6

OBJECTIVES

This program is designed to develop and refine skills in composition, rhythm and melody.

PEDAGOGICAL CONTENT DESCRIPTION

This program covers three types of musical activities.

1. "Magic Piano" allows the user to create, hear, edit, save and/or print a composition of up to seventy-five notes. The notes are on the treble clef only, and there are no provisions for sharps, flats, rests or chords. It is possible to choose different note values and different tempos.
2. "Rhythm Game" permits the user to practice rhythm skills covering triplets, ties, syncopation and scotch snaps. The student chooses to see and/or hear the rhythms in one of ten levels, with the rhythms randomly selected in the tenth level. The user attempts to duplicate the rhythm by tapping the space bar. If the rhythm is too difficult, the computer will review previous selections. Help is also available.
3. "Melody Game" allows the student to choose from nine possible skill levels and to choose the number of notes (two to nineteen) each melody will have. The computer plays the melody and the student attempts to play it back. Help is also available.

PEDAGOGICAL CONTENT EVALUATION

The content is appropriate for most of the target audience; however, it appears to be most suitable for the upper grade levels. Grade two and three students will require teacher assistance though they will likely use only the lower levels of the program. Parts of the program would be too difficult, especially where the melodies are random notes with no rhythms attached. The fact that each composition activity can be interrupted and saved for later editing and continuation is a strength. However, the composition part of the program is limited in that only the key of C is used; no sharps or flats are provided, no entering of bar lines or time signatures is permitted, and the melody cannot exceed seventy-five notes. The inclusion of instruction in theory or note values would add strength to the program. The "Rhythm Game" and "Melody Game" are effective in providing appropriate and ample practice to help users improve their rhythm and interval recognition skills. There is sufficient range to enable this portion of the program to be used with beginners as well as advanced students. The help which is available in the program is effective and adds strength to the program.

The content appears to be accurate, relevant and readable. However, most of the younger target audience will need teacher assistance with the instructions and some of the procedures, especially for the initial exposure to the program. This program makes effective use of the computer.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction involves menu selection, selection of skill level, name entry, entering a tune using number keys, editing the tune by using right and left arrow keys, using various keys to change note values, and using the space bar to tap out rhythms.

In the "Rhythm Game", levels one to nine contain 276 pre-selected rhythms while skill level ten uses random selections. In "Melody Game", five of the game levels use melodies which conform to certain rules of counterpoint while the melodies are randomly chosen in the four most difficult levels.

Feedback is immediate and personalized in "Melody Game" and "Rhythm Game". Correct responses are rewarded with a short complimentary, textual comment. When an incorrect answer is given, the user has the choice of trying again or repeating a cue and then trying again. If help is needed, the user is given further information depending on which game is played. If all questions in a game level are answered correctly, a short graphic with a few bars of a familiar piece is played. There is no real feedback in "Magic Piano" other than the student being able to hear what was composed. There are no specific pre- or post-tests provided in this program.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is appropriate and actively involves the student. The program is generally easy to use and the user is able to move through the program or easily exit. However, the space bar appears to be inaccurate as an input device for rhythm at the higher and more difficult levels. Some of the higher students may become frustrated when the program does not pick up the taps accurately and/or may become bored with the slowness of the program at times. The program does not instruct, but it provides very good drill and practice to improve interval recognition and rhythm skills. Some previous knowledge of music theory is needed for effective use of the program. The questioning techniques are generally suitable with questions randomly generated to add to the challenge at the difficult levels. The lack of a relationship between names and values of notes and the keyboard entries concerned one of the analysts.

Although immediate feedback is provided in the games, the positive feedback is not always appropriate as the use of terms such as "splendid" after the sixth try is not suitable. Although the negative feedback is generally not corrective, help is usually available. There is a lack of any kind of quantitative evaluation.

TECHNICAL CHARACTERISTICS DESCRIPTION

This program uses both upper and lower case text, some graphics, sound which is musically oriented and metronome ticks. Special keys are displayed in the lower right-hand corner of the screen.

TECHNICAL CHARACTERISTICS EVALUATION

The displays are well-organized, clear and easy to read. The placement of special keys on the screen is good and the user is able to readily move through the program. The cursor movement in the editing option is very slow and the disk access also tends to be slow. The graphics are clear and a reasonably good hard copy can be printed; however, time signatures and bar lines are not included in the printout. The use of the metronome is appropriate but not extensive enough. It indicates the tempo before the exercise is presented, then stops and the student has nothing to gauge his or her input. It is noted that the space bar creates inaccuracies in attempting to reproduce rhythmic patterns at the difficult levels.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

No entry competencies are specified. The program does not include a management system. The user's guide includes an introduction to the program, an explanation of how to use each of the three activities, eight sample songs and two pages of definitions of musical terms. A 63-page music workbook for student use is provided.

IMPLEMENTATIONAL SUPPORT EVALUATION

Although the program does not specify entry competencies, the user should have some previous knowledge of music theory, note names, values and intervals. The program is likely too difficult for students in the primary grades (two and three) unless teacher assistance is provided. The teacher documentation is concise and generally easy to follow; however, it would be useful to have a list of the rhythms and melodies at each level. As the program exists, the teacher must go through the activities to gauge the suitability for specific grades. It would also be helpful to have all editing functions summarized on a quick reference card. The student workbook is useful for beginning music theory, but it will likely be too easy for advanced students. This program can be used not only by piano students but by all music students on an individual, small group or even an entire class basis. Minimal teacher computer competency is required to use the program.

SUMMATION

The intent of the program is commendable. This program provides a very good drill and practice in rhythmic and melodic patterns using an interesting and challenging approach. There is a good choice of playing levels reflecting a variety of skill difficulty levels. This program uses appropriate graphics, has suitable printer options, is generally easy to use, and can be used by individuals or classes.

The main weakness in "Magic Piano" (activity 1) is that it is too limited. It would be beneficial to increase the note range, and to allow the user to enter bar lines and set up individual measures in the song. The inclusion of time signatures should be allowed and including the bass clef would enhance the program. The rhythm games are very good at the lower levels but the patterns at the higher skills (eight and up) are very difficult to duplicate because of the limitations of using the computer keyboard. The lack of a relationship between note names and values is also a drawback.

STATUS

"Magic Piano" has been authorized as a **SUPPLEMENTARY** learning resource for grades 2 to 6.

PURCHASE INFORMATION

This product may be purchased for $49.95 US (1987) from EduSoft at the address provided at the beginning of the report. EduSoft also offers a site licensing agreement where for an additional $35.00 US the school can legally make multiple copies of the program. This courseware may also be available locally, check with your software dealers.

The publisher provides a 90-day warranty on materials and workmanship during which defective disks will be replaced free of charge. After this period, replacement disks will cost $5.00 US.

Due to frequent disk interaction, this disk may be used on only one computer at a time.

MAGIC SLATE

DESCRIPTION

Title: Magic Slate
Authors: Donna Stanger et al
Publisher: Sunburst Communications
Source: P.O. Box 3240, Station F, Scarborough, ON M1W 9Z9
Subject: Language Arts
Topics: Word processor
Version: 1987 1.3
Display Language: English
Cost: LRDC Buyer's Guide
Tel. #: 1-800-247-6756
Users: Grades 2 - 6
Components: 1 20-column disk with backup, 1 40-column disk with backup, 1 80-column disk with backup, teacher's guide (200p.), reference manual (58p.), reference cards
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 or 2 disk drives, monitor, graphics printer desired, 80-column card needed for Apple IIe or IIc with 80-column version
Other Formats Available (not evaluated): Available only in Apple format

NOTE

"Magic Slate" includes three disks which offer three word processing formats: a 20-column level designed for young students, exceptional children and the visually impaired; a 40-column level designed for intermediate users; and an 80-column level designed for advanced users. Unless otherwise noted, the comments made in this report refer to the 80-column version.

EDITOR DESCRIPTION

The 20-column version offers eight rudimentary functions chosen by icon: edit, load, print, new, save, delete, make and quit. The 40-column version adds options such as justification, underlining, and a choice of type styles, and the 80-column version offers complete functions.

The editor operates in three different modes, each depicted by a different cursor: a typeover mode, an insert mode and a move mode. Commands are mneumonic and error messages are localized. Scrolling allows movement by line, sentence, page, or to the beginning or end of a file. Blocks of text to be moved must be delineated with beginning and end markers. The search and replace feature accommodates words or strings of up to 31 characters and allows either global searching or highlighting of the next/previous occurrence of the word(s).

EDITOR EVALUATION

Document creation is straightforward. The 15 character limit on file name length does not prove restricting at the elementary level.

While an attempt has been made to make commands mneumonic, the fact that control sequences do different things in different modes can prove confusing (e.g. in edit mode, "CONT W" sets the window; in search and replace, "Cont W" places a wild card character in the string; in delete, "Cont W" marks the next word, etc.). The process of moving blocks of text involves several steps, however the program can handle large moves and, in the 80-column version only, offers a split screen to enable simultaneous viewing of both the source and the destination.

The search and replace feature is efficient; however, because special typestyles and paragraph end markers appear in inverse on the screen, careful scanning of the screen is required to determine what is being highlighted by the search and replace feature. The fact that "Magic Slate" periodically saves text to disk minimizes the amount of text that may be lost due to a power surge, but the process of scrolling and moving text is impeded by the necessity for the text to be loaded from the disk drive.

FILE MANAGEMENT DESCRIPTION

"Magic Slate" automatically saves text to disk at periodic intervals, however the user must still "save" files at the end of the creation process. This is done by calling up the main menu, highlighting "Save" and then following the directions given. The file deletion process follows a similar procedure.

By employing the "Convert" command in the utilities section, files can be converted to ProDOS format for subsequent interfacing. The program does not offer password security.

FILE MANAGEMENT EVALUATION

"Magic Slate" employs extensive menus to walk the user through procedures such as saving or deleting a file. This makes the program user friendly, but it necessitates several steps to complete any operation. When saving a file the program fails to warn users if another file of the same name already exists; it simply replaces the existing file with the new file. A prompt to warn users of the potential conflict would be in order.

Having to convert files into ProDOS format before being able to use them with most spelling checkers is a definite limitation, as the process of conversion is tedious.

PRINT FORMATTER DESCRIPTION

The program offers built-in margin defaults; however, different margins may be specified in the text and saved to disk for subsequent recall. The 40 and 80-column versions of the program offer a choice of 1 to 2 1/2 line spacing; the 20-column version offers single spacing only with characters approximately 1/2 centimetre in height. Justification is likewise available only on the 40 and 80-column versions.

Built in tabs at every five spaces may be altered by the user. Automatic centering between columns is available. Automatic pagination is invoked based upon the user's choice of the number of lines per page, however page breaks can be forced. The word wrap feature cannot be disabled. The program offers user-defined function keys which can accommodate up to 255 characters.

"Magic Slate" offers a choice of two typestyles for the 20-column version and seven typestyles for the 40 and 80-column versions. It is noted that if your printer does not have graphics capabilities, it will not be able to print the large letters in the 20-column version and may not print all of the typestyles in the 40 and 80-column versions.

PRINT FORMATTER EVALUATION

The program offers a good choice of line spacing and the fact that justification can be invoked at any time during document creation is a strength. While default margins can be over-ridden, the fact that both margins and line spacing are globally set proves very limiting to advanced users. The only way to achieve margin changes within a document is through the cumbersome process of using tab stops at the beginning of each line. Provided default margins are used, centering appears on the screen as it would on paper. However, if default margins are changed, all centered text appears on the left side of the screen. This is a most annoying feature.

The ability to define function keys is a useful feature, and depending upon the graphics capability of the printer, a good choice of typestyles is available. The fact that "Magic Slate" offers reverse field viewing is a nice extra.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The 200 page teacher's guide contains six sections: the first section introduces the program, gives system configuration information, assists in trouble shooting, etc.; the second section provides numerous writing exercises designed to acquaint students with the features of "Magic Slate"; the third, fourth, and fifth sections provide tutorials on the use of the 20, 40 and 80-column versions of the program respectively; and the last section suggests shortcuts and tips for advanced users. The reference manual is intended to provide quick information on all of the commands and functions.

IMPLEMENTATIONAL SUPPORT EVALUATION

The teacher's guide is well-organized and is clearly written The examples and classroom implementation suggestions are applicable to most classroom situations.

The fact that the section entitled "Magic Slate Handbook" can be reproduced enables students to have individual copies of the explanations of the major features.

EASE OF USE EVALUATION

The availability of several different versions of this program specifically geared to differing age levels makes this program relatively easy to learn and use.

SUMMATION

"Magic Slate" offers the strengths of good documentation, a choice of typestyles (provided the necessary hardware is in place), and the availability of three different versions (20, 40 and 80-column) to meet the varying needs of students. The program is easy to learn and the feature of needing the master disk only for the initial boot is helpful for most classroom situations.

The use of virtual memory and the consequent disruptions of text entry in order to periodically save the document proves annoying. The search and replace function is likewise very tedious in view of the need to constantly access the disk. While default margins can be changed, the fact that user-set margins appear differently on screen than in print is confusing. These features combine to severely limit the usefulness of the program for advanced users where documents longer than one or two pages may be required.

STATUS

"Magic Slate" has been authorized as a **RECOMMENDED** learning resource for grades 2 to 6.

PURCHASE INFORMATION

Alberta schools may purchase this program through the Learning Resources Distributing Centre. Contact the LRDC for pricing and warranty information.

This program has the advantage of being capable of operation on more than one computer at a time; however, such use is subject to copyright laws and any license or purchase agreement.

MATHEMATICS ACTIVITIES COURSEWARE 8

DESCRIPTION

Title: Mathematics Activities Courseware 8 (MAC 8)
Version: 1983
Authors: Doug Super et al
Display Language: English
Publisher: Houghton Mifflin Canada Ltd
Cost: LRDC Buyer's Guide
Source: 150 Steelcase Road West, Markham, ON L3R 1B2
Tel. #: (416) 475-1755
Subject: Mathematics
Users: Grades 8 & 9
Topics: Estimation, problem solving, logic, decimals, fractions, percents, square roots, geometry
Components: 3 disks with backups, teacher's guide, worksheets & suggested activities (78p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, colour monitor preferred
Other Formats Available (not evaluated): IBM PC, Commodore 64

OBJECTIVES

This courseware is designed to engage students in active experiences involving estimation, problem solving strategies and concept development.

PEDAGOGICAL CONTENT DESCRIPTION

"MAC 8's" three disks contain 18 games designed to provide drill and practice on the following topic areas:

1. THE THREE M's - students are presented with various bar graphs and are asked to estimate the mean, median or mode.

2a). POWER PATTERNS - students attempt to determine the base and exponent of a number.

2b). CLOSING IN - an estimation activity which challenges students to improve decimal multiplication and division within a given time frame.

3. NUMBER LINE HOPE - a strategy activity involving the multiplication and division of integers.

4. RUBI-QUATIONS - a logic activity involving basic facts in which players, assigned to a target number position, attempt to reach it by dividing their number by any integer from -9 to 9 in a series of turns.

5. LOOP THE LOOP - provides practice in the use of "Print" and "For...Next" statements by solving BASIC programming puzzles.

6. NUMBER STUMPER - a logic activity involving factors, multiples, common factors, common multiples and prime factors.

7. OPERATING WITH FRACTIONS - a timed drill involving basic operations with fractions.

8. ECKSES AND OHZS - provides practice in solving simple equations (1 variable) with the minimum 2 operations. There are 12 equations per game.

9a). RATIO RENDEZVOUS - provides drill in estimating, calculating and identifying equivalent ratios.

9b). PULLING PERCENTS - timed exercises in identifying equations which will lead to the solution of a given percent problem.

10. SQUARE ROOT CHASE - provides practice in estimating the square root of decimals (up to six decimal places) until the exact root is found.

11. TRIANGLE TRYOUTS - a geometry activity involving triangle construction, calculating the angles and lengths of sides, and working with the rules of congruency SSS, SAS, and ASA.

12. METRIC MYSTERIES - a measurement activity involving calculating the areas of triangles, quadrilaterals, and irregular "L" and "U" shaped figures.

13. TRANSFORMATIONS - an activity involving the skills of translations, rotations, reflections and dilatations.

14. EQUATION DARTS - a graph estimation activity involving the solution of equations with two variables.

15. PROBABLE URNINGS - a probability activity practice in working with independent and dependent events based on drawing marbles from an urn or guessing its contents.

16. THE GAME OF LIFE - a simulation involving experimentation and investigation. Players are given the opportunity to place life forms on a graph and by applying the three rules of life (birth, survival, and death), see the resulting generations.

This courseware is designed to supplement the Houghton Mifflin Mathematics textbook and each activity is directly designed to reinforce a central concept of one the textbook units. User support materials consisting of worksheets and activities are provided for each game.

The games are designed so that individuals or groups may play against the computer or against each other. Many of the activities are open ended, thus permitting involvement at varying levels of sophistication. In addition, interaction within a group in the determination of appropriate strategies is encouraged.

PEDAGOGICAL CONTENT EVALUATION

The content, sequence, and level of difficulty are appropriate to the target audience; however, some programs (e.g. Loop the Loop) may be best suited for advanced students. All program content is metricated.

Although the programs can support any authorized Grade 8 text provided that the suggested lead-up activities are employed, they are specifically designed to supplement the Houghton Mifflin Grade 8 mathematics textbook. The games can be chosen in any sequence and are designed to review, reinforce, enhance and practice the operations and concepts taught by the teacher in the classroom. When used in combination with classroom instruction and in conjunction with the support materials provided, this courseware admirably fulfils its stated objectives.

INSTRUCTIONAL FORMAT DESCRIPTION

Each game requires the student to demonstrate mastery of the skill mentioned in the objectives, to think of several possible answers to the randomized questions posed, and then to enter the answer that will most likely result in a successful turn. Input consists of entering single letters or words. All questions are randomized. Feedback usually combines text, graphics and sound. Sequence of presentation is program controlled; rate is both user and program controlled.

INSTRUCTIONAL FORMAT EVALUATION

nteraction is consistent and readability is appropriate to a grade 8 audience. Game instructions, which can be easily bypassed, occur at the beginning of each activity. Game structure is both unique and imaginative. A few of the games are timed and this combined with a visible, ever-changing scoreboard serves to heighten both student motivation and interest. Unfortunately, the instructions do not always inform the user that the game will be timed.

Students can compete with the computer or with other students and are encouraged to watch the responses of their opponent in order to plan effective strategy for their next move. Feedback is immediate, non-threatening, very motivational, and encourages student interaction with one another. Students participate actively and can compete with other students or with the computer, thus heightening motivation.

TECHNICAL CHARACTERISTICS DESCRIPTION

High resolution graphics are an essential component of the programs. Colour is used, but a colour monitor is not mandatory. Sound can be disabled by the teacher. A few of the programs use inverse flashing and scrolling.

TECHNICAL CHARACTERISTICS EVALUATION

Technical design is excellent. Displays are appropriate and effective, text is clear and easy to read, and transition from one display to the next is smooth. Optional sound complements each program. The use of both standard size text for general comments and large size text for important numbers or concepts adds effective emphasis. The program is bomb-proof in that all keys unnecessary to game operation are disabled.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

A teacher management system enables teachers to use/disable sound and to control student program selection. A 78 page instructor's guide contains student worksheets, provides program operating instructions, suggests alternate classroom activities, and outlines specific objectives for each program.

IMPLEMENTATIONAL SUPPORT EVALUATION

The management system is easy to access and use. Documentation is well organized and following its guidelines results in easy implementation. The worksheets are closely linked with the computer programs and provide a good record of student progress.

SUMMATION

The major strengths of this package are the abundance of practice it provides in estimation and problem solving activities and its effective use of graphics and sound to motivate students. The programs offer drill and practice only, therefore prior classroom instructional preparation is essential. Also teachers will need to assist students having difficulty as only limited feedback is provided and some problem solving activities may prove to be challenging to weaker students.

STATUS

"Mathematics Activities Courseware 8" has been authorized as a **RECOMMENDED** learning resource for grades 8 and 9.

PURCHASE INFORMATION

Alberta schools may purchase this program from the Learning Resources Distributing Centre. Contact the LRDC for price and warranty information.

Each disk has the advantage of being capable of operation with more than one machine at a time if only one activity is accessed; however such use is subject to copyright laws and any license or purchase agreement.

MÉGA-TEXTE - APPLE

DESCRIPTION

Titre:	Méga-Texte	**Version:**	1985
Auteurs:	Vincent Côté et al	**Langue d'affichage:**	Français
Éditeur:	Québit Logiciels Inc	**Coût:**	93,20 $ (1987)
Source:	C.P. 292, Montréal, QC H2C 3G2	**Tel.#:**	(514) 381-8571
Matière:	Français	**Utilisateurs:**	Maternelle à 3e
Sujets:	Traitement de textes	**Affichage:**	20 colonnes

Composantes: 1 disquette, 1 manuel de référence (36p.), 1 aide-mémoire, 1 feuille-liste des améliorations, 1 manuel supplémentaire de Alberta Education, 1 aide-mémoire pour Apple IIe

Matériel requis: Apple II+/IIe, 48K, DOS 3.3, 1 lecteur de disque (2 préférables), moniteur couleur (préférable), imprimante facultative

Note: ne fonctionne pas sur le IIgs en utilisant la carte d'impression intégrée

Disponibilité sur d'autres ordinateurs (pas d'évaluation): IBM-PC, PC jr, MAX 20

NOTE

Même si l'éditeur annonce le produit comme étant approprié "pour tous", les résultats de nos évaluations indiquent qu'il serait beaucoup plus approprié aux élèves de fin maternelle à la 3e année à la rigeur. A cause des limitations imposées par un affichage à l'écran et une page imprimée de 20 colonnes, la capacité d'un écran aussi bien que l'absence d'un nombre de fonctions de traitement de textes restreignent trop le programme et frustreraient les utilisateurs plus âgés. Donc, l'évaluation de ce rapport porte sur la justesse du programme pour les tout-petits.

Il est à noter que ce programme fait interface avec "Méga-Mots" et Méga-Lettres". "Méga-Mots" (64K) est un dictionnaire correcteur avec plus de 12,000 mots pré-enregistrés. L'utilisateur peut y enregistrer ses propres mots ou même préparer une autre disquette dictionnaire. "Méga-Lettres" est un éditeur de calligraphies et de dessins. Ce rapport porte seulement sur l'évaluation de "Méga-Texte". Aucune revue des deux autres programmes n'a été faite.

Québit a sorti une version IBM de "Méga-Texte". Pour plus de renseignements, voyez la note à la fin du rapport.

DESCRIPTION DU MODE D'ÉDITION

"Méga-Texte" est toujours en mode d'écriture soit de création de fichier. Aucune restriction quant à la longeur du texte à créer n'est mentionnée mais la capacité semble être d'environ 9,000 caractères (38 pages-écrans de 12 lignes avec un maximum de 20 caractères par ligne).

Le logiciel "Méga-Texte" écrit et édite dans le même mode, soit celui d'écriture. Le curseur ne change jamais de forme en cours d'utilisation. Il se déplace en utilisant les flèches. Pour des sauts plus grands, l'élève utilise des touches de contrôle. Le texte peut être effacé par caractère avec la touche DELETE pour les caractères sur une même ligne, ou avec des touches de contrôle pour toute une ligne ou tout un texte. Une zone tampon (avec une capacité de 12 lignes) permet de déplacer et/ou de reprendre avec une touche de contrôle, des parties de texte qui sont effacées par la ligne. Le texte est repris en ordre inverse.

Une édition dans le texte est accomplie en plaçant le curseur à l'endroit approprié et le mode récriture est automatique. Si l'utilisateur désire insérer dans le texte, il/elle doit alors placer le curseur au bon endroit, déplacer le texte vers la droite (d'un espace à la fois, avec une touche de commande) avant d'y ajouter un texte. S'il n'y a pas suffisamment de place sur la ligne pour faire l'addition désirée, il est donc nécessaire de couper la ligne et ensuite ajouter la partie de texte désirée. Le programme ajoute donc des lignes vides, une à la fois, en déplaçant en même temps vers le bas, l'ancien texte. Le reste du texte doit, ensuite, être greffé à la ligne précédente.

Des petits bips se font entendre pour avertir des erreurs: lorsqu'un mot ne peut être ramené à la ligne suivante (de plus de 20 lettres), lorsque le curseur a atteint le sommet et ne peut plus continuer, lorsqu'un fichier s'avère introuvable et lorsque la commande de nettoyage est utilisée. De plus, quelques messages écrits se présentent aussi, parfois.

Le défilement du texte peut se faire d'une ligne à la fois, de six lignes à la fois, directement au début du texte ou à la fin du texte aussi bien qu'à des endroits prédéterminés à chaque cinquième espace, vers la gauche et la droite.

L'utilisateur peut, en tout temps, avoir recours à un tableau des touches (si l'utilisateur a besoin d'aide). Le programme n'a pas l'option du tableau partagé ni la fonction "localiser et remplacer.

ÉVALUATION DU MODE D'ÉDITION

Le processus pour la création d'un fichier est simple d'utilisation et facile à maîtriser. L'effacement de texte et la récriture sont faciles à accomplir mais la façon d'effacer par caractère n'est pas conformiste. Le curseur est placé à la gauche du texte à effacer, et l'information se déplace vers la gauche et disparaît sous le curseur, soit un caractère à chaque fois que la touche DELETE est appuyée. La plupart des programmes de traitement de textes déplacent le curseur, qui efface, au lieu de déplacer le texte.

Un autre aspect non-conformiste de ce programme est la façon d'insérer le texte. La majorité des programmes de traitement de textes permettent automatiquement les insertions et le reste du texte se déplace par la suite, comme partie du processus d'insertion; le mode récrire demande d'habitude une touche de commande. Ce programme offre la récriture automatique, ce qui peut facilement causer la perte d'une partie de texte pendant l'édition. Aussi, l'édition est ennuyante car l'utilisateur doit créer un espace vide avant de pouvoir entrer du nouveau texte. Ceci nécessite que l'utilisateur sache d'avance le nombre exact d'espaces nécessaires pour ce qu'il veut ajouter; ce qui n'est pas une façon efficace d'éditer un texte. Si l'on doit ajouter du texte, la ligne doit être coupée et après, greffée avec la ligne suivante. Ceci peut causer des ennuis si l'ajout est fait au milieu d'une ligne, car tout le reste du texte, ou la fin du paragraphe doit être reformaté une ligne à la fois.

Les commandes sont assez faciles à retenir car elles sont ou mnémotechniques, ou leur position sur le clavier est un indice. Quelques-unes des commandes sont répétitives, et ne seraient pas nécessaires pour les petits, par ex.: CTRL-Q et la flèche du haut font tous les deux monter le curseur d'une ligne vers le haut, etc.

Le système de défilement est simple et très efficace, avec plusieurs choix pour des petits ou des plus grands sauts. Il permet de localiser des parties de texte assez rapidement. Le déplacement d'une partie de texte est limité, mais suffisant pour les petits. C'est dommage qu'il n'y a pas de préavis quand la zone tampon de 12 lignes est remplie, car une partie de texte peut être perdue. Le manque d'une fonction pour "localiser et remplacer" est regrettable, car ceci devrait faire partie intégrante de tous les programmes de traitement de textes.

DESCRIPTION DE LA GESTION DE FICHIERS

Un fichier peut être préservé ou effacé à travers des choix d'un menu qui est obtenu par une touche de contrôle; CTRL-F. "Méga-Texte" demande alors le nom du fichier à préserver. Le titre peut compter jusqu'à 16 caractères; des lettres minuscules et majuscules, des nombres et des espaces vides. Tous les caractères dans le titre apparaissent dans le menu principal. La seule façon de s'assurer qu'un texte a bien été préservé ou effacé est d'utiliser la commande CTRL-F de nouveau et de lire le menu principal qui est affiché au haut de l'écran. Un fichier peut être renommé plus tard, mais il sera toujours enregistré sous le premier titre à moins que l'utilisateur l'efface avec une action supplémentaire. Il est à noter que la commande "préserver un texte" n'ajoute pas une partie à un texte déjà préservé sous un même titre, mais remplace totalement le texte par la nouvelle partie. Le programme ne permet pas le fusionnement de texte et il n'offre pas de sécurité sous forme de mot de passe.

Vu que le programme n'a pas la fonction d'initialisation d'une disquette vierge, si le texte va être préservé sur une disquette de données, il est nécessaire de faire l'initialisation de cette disquette, avec le disque d'exploitation DOS 3.3, AVANT la création initiale du texte.

Le programme ne permet pas de reproduire ou de copier, sur une autre disquette, les programmes. Toutefois, cela est surmontable par le fait que l'utilisateur peut reprendre chaque fichier d'une disquette de données, et les sauvegarder de mémoire, un par un, sur une autre disquette de données.

ÉVALUATION DE LA GESTION FICHIERS

Les fichiers sont préservés, repris et effacés assez facilement, mais le jeune utilisateur aura probablement besoin d'aide au début, afin de bien apprendre à accomplir ces processus. Quand l'utilisateur veut reprendre ou effacer un fichier, il est nécessaire de taper le nom exactement tel qu'il a été préservé car les minuscules, les majuscules et les espaces vides font partie intégrante du nom. Une vérification à l'écran des fichiers préservés et effacés serait beaucoup plus avantageuse que de vérifier le menu principal. C'est dommage que l'utilisateur doive se souvenir par lui-même de préserver son texte. Toutefois, s'il veut effacer le texte de la mémoire, une confirmation à cet effet est requise. Cette confirmation peut agir comme un rappel à préserver le texte avant de l'effacer.

Le manque de sécurité sous forme de mot de passe n'est pas une grande faiblesse, mais l'absence d'une confirmation avant de supprimer ou de préserver un texte peut causer des problèmes. Un fichier est perdu dès qu'un autre est préservé sous le même nom. A moins que chaque élève ait sa propre disquette, il est très probable, à cause du vocabulaire limité des enfants de première ou de deuxième année, que plus d'un enfant choisissent le même titre pour son histoire. Ceci veut dire que, si plusieurs histoires sont enregistrées sur la même disquette, avec le même titre, seulement la dernière histoire enregistrée y sera. Les autres seront perdues, car il n'y a pas d'avertissement pour indiquer que le titre avait déjà été utilisé.

C'est dommage que le programme ne reconnaisse pas les disquettes initialisées avec ProDOS, car il est fort probable que des écoles n'aient pas le disque d'exploitation DOS 3.3.

DESCRIPTION DE LA DISPOSITION DE L'IMPRESSION

L'affichage d'un texte se fait en 20 colonnes à l'écran et sur l'imprimante. En mode écrire, l'utilisateur peut accéder à tous les caractères français qui sont visibles à l'écran. Le soulignement et le centrage d'un titre ou d'une ligne y apparaissent aussi. Tous les paramètres d'impression: l'interligne, les marges et l'intervalle des pages sont prédéterminés par le programme. Avec "Méga-Texte", un texte est automatiquement justifié à la gauche, mais l'enfant peut choisir de le centrer sur la ligne. Le cadrage du texte est automatique à moins que le mot ait plus de 20 caractères, ce qui est peu probable pour les tout-petits. Le programme n'a pas les fonctions suivantes: l'immobilisation du cadrage d'un texte, la pagination, le décalage prédéterminé d'un paragraphe, l'augmentation de la mémoire vive, l'affichage du nombre de caractères disponsibles en tout temps.

Le programme a plusieurs touches spéciales qui permettent la génération des caractères spéciaux français, des formes géométriques, des symboles, etc., aussi bien que les dessins créés avec "Méga-Lettres". Dix-huit choix de couleurs sont offerts pour colorer soit les lettres ou le fond. Le programme offre plusieurs calligraphies, dont d'autres sont offertes avec "Méga-Lettres". Le style de calligraphie vu à l'écran est le même que celui qui sera imprimé. Il est possible de créer un champ inversé avec l'option de colorer le fond mais, si imprimé, le fond sera noir (ou la couleur du ruban de l'imprimante), insouciant de la couleur à l'écran. Quoique le programme ne puisse pas sélectionner certaines pages à imprimer, il est toujours possible d'indiquer le point où commencer l'impression du texte, en plaçant le curseur au point désiré. Afin d'avorter l'impression, l'utilisateur appuie sur la touche ESC, et la réactive en appuyant sur retour. Le programme ne prévoit pas la capacité du spool, de l'impression par priorité, de copie brouillon, d'indices inférieurs ou supérieurs, de caractères gras ou de lignes verticales.

ÉVALUATION DE LA DISPOSITION DE L'IMPRESSION

La disposition de l'impression de "Méga-Texte" est assez satisfaisante. Les fonctions de centrage, de tabulation, la capacité de la mémoire vive, etc. sont adéquates pour la clientèle cible. La valeur du programme est améliorée par les particuliarités de couleurs, de calligraphies, de dessins, etc. et l'accès aux caractères français en une seule action, à travers les chiffres, est excellent. Le fait que l'enfant ne peut faire aucun changement à la disposition de l'impression et le manque de certaines fonctions ne sont pas de grandes faiblesses, compte tenu des utilisateurs.

La préparation de l'imprimante peut s'avérer frustrante pour l'enseignant/e, non seulement pour apprendre à le faire, mais parce qu'elle doit être répétée chaque fois que le programme est amorcé, car le positionnement ne peut pas être sauvegardé.

DESCRIPTION DU MATÉRIEL D'APPUI

Le programme comprend un manuel de référence de 36 pages. Il utilise de courtes descriptions pour décrire brièvement les différents types de contrôle qui sont offerts par "Méga-Texte". Un nombre limité de dessins illustrent quelques-unes des fonctions. Le manuel comprend une table des matières et un résumé des touches de contrôle. Il n'y a pas de tutoriel ni d'exemples sur la disquette afin de clarifier les opérations. Une feuille-liste des améliorations et un aide-mémoire des commandes y sont inclus.

En plus de la documentation fournie par Québit Logiciels Inc., une version supplémentaire du manuel est incluse dans l'ensemble. Cette version du manuel fut préparée par Alberta Education, afin de rendre le programme plus facile d'utilisation pour l'utilisateur du Apple IIe.

ÉVALUATION DU MATÉRIEL D'APPUI

La documentation qui accompagne "Méga-Texte" est inadéquate car elle manque d'organisation, d'exemples et de détails. Les auteurs ont essayé d'adopter un vocabulaire familier à l'enfant, mais c'est encore trop complexe pour l'enfant. De plus, un/e enseignant/e qui essaie d'aider un enfant ne sait pas où trouver l'information qui lui est nécessaire pour résoudre les problèmes. L'utilisateur devra passer du temps avec le programme avant qu'il se sente confortable avec celui-ci et qu'il puisse l'utiliser au maximum.

La qualité inférieure de la documentation est affaiblie encore d'avantage par l'incapacité à garder cette documentation à jour avec les changements dans le programme. Le programme est écrit pour les Apple II+/IIe, mais le manuel est écrit principalement pour le Apple II+, avec seulement quelques références au Apple IIe. Plusieurs différences existent, avec les touches de contrôle, entre les versions mais elles n'ont pas été mises clairement en évidence, ni suffisamment expliquées. Le débutant se sentira probablement frustré dans plusieurs situations au commencement.

Une carte "aide-mémoire" qui indique la position des caractères accentués français aussi bien que les symboles et les dessins qui peuvent être générés par le programme serait très avantageuse pour le jeune utilisateur. Un exercice tutoriel avec des exemples serait très utile pour aider le débutant avec les problèmes qui vont presque certainement se présenter.

Avec l'ajout de la version du manuel préparée par Alberta Education, presque toutes les faiblesses de la documentation originale devrait être sumontées. Le programme devrait être plus facile à utiliser en suivant cette nouvelle documentation et la nouvelle carte aide-mémoire qui sont basées sur l'emploi du programme avec l'ordinateur Apple IIe.

ÉVALUATION DE L'ACCESSIBILITÉ

Rédiger un texte qui est déjà composé peut s'avérer ennuyant s'il est nécessaire d'y adjouter d'autres mots. Alors, la rédaction d'un texte peut prendre beaucoup de temps et même, être risquée. C'est assez compliqué pour le jeune utilisateur à apprendre à préserver, reprendre, effacer et imprimer un texte et il/elle va avoir besoin de l'enseignant/e pour lui aider à accomplir ces manoeuvres les premières fois. Après que l'utilisateur aura bien appris les processus, il/elle pourra les faire seul assez facilement. Il faut que l'utilisateur se souvienne de la façon EXACTE dont le titre est préservé. L'enfant profiterait d'avoir accès à un guide des lettres accentuées.

SOMMAIRE

Le programme "Méga-Texte" a plusieurs forces qui incluent: l'accès des caractères français par une seule touche; un affichage de 20 colonnes en plusieurs différentes calligraphies; l'interfaçage avec un dictionnaire correcteur et un éditeur de dessins et de calligraphies (sans évaluation); la disponibilité de couleurs et de touches spéciales; un affichage à l'écran qui est le même que celui imprimé; des commandes et des touches de contrôle assez faciles à retenir; et la facilité du déplacement du curseur à travers le texte. A cause de l'affichage de 20 colonnes, la page-écran se remplit vite et donne un sens d'accomplissement au jeune utilisateur.

Même si le programme a plusieurs bons traits, il a une faiblesse très importante: les restrictions d'édition d'un texte. D'autres faiblesses moins sérieuses incluent: l'absence d'exemples ou de tutoriel sur la disquette, la rédaction d'un texte de façon peu conventionnelle et le manque de sécurité sous forme de mot de passe. La plupart de ces faiblesses peuvent être réduites au minimum par une introduction appropriée et de bonnes techniques de surveillance.

VERSION - IBM

Québit a sorti une version IBM de "Méga-Texte" (sans évaluation à date) qui est assez différente de la version Apple. La version IBM fonctionne par des menus graphiques. Elle offre quatre grandeurs d'écriture, jusqu'à un affichage de 80 colonnes, ce qui la rend appropriée aussi à une clientèle cible plus âgée.

STATUS

L'ensemble "Méga-Texte", version Apple, est reconnu comme ressources pédagogique de status **RECOMMANDÉ**.

ACHAT

Les écoles de l'Alberta peuvent acheter cet ensemble d'une disquette (qui comprend aussi la documentation supplémentaire préparée par Alberta Education) du Learning Resources Distributing Centre pour environ 93,20 $ (1987).

Ce programme a l'avantage de charger complètement quand il est amorcé, sauf pour les fonctions de préserver, reprendre, effacer ou imprimer un fichier; par contre, cet usage est soumis aux lois qui régissent les droits d'auteurs et toute licence ou entente acceptée lors de l'achat du matériel.

MICROTHERMO

DESCRIPTION

Titre: Microthermo
Auteur: Paul H. Trudel
Éditeur: Centre franco-ontarien de ressources pédagogiques
Source: 339 rue Wilbrod, Ottawa, ON K1N 6M4
Matière: Sciences
Sujets: Chaleur, matière et états, théorie cinétique, calorimétrie
Composantes: 1 disquette, guide du maître (12 p.)
Matériel requis: Apple II+/IIe/IIc/IIgs, 48K, 1 unité de disque, moniteur couleur facultatif
Disponibilité sur d'autres ordinateurs (pas d'évaluation): Disponible sur format Apple seulement

Version: 1985
Langue d'affichage: Français
Coût: 69,95 $ (1987)
Tel. #: (613) 238-7957
Utilisateurs: 9-10-11 année

OBJECTIFS

Ce programme est conçu pour enseigner ou revoir les concepts élémentaires de la chaleur et pour favoriser l'acquisition de l'habileté à résoudre des problèmes en apprenant à analyser d'une façon systématique.

DESCRIPTION DU CONTENU PÉDAGOGIQUE

Le contenu de Microthermo est divisé en trois grandes parties: les instructions générales, les leçons et les problèmes. Les instructions générales donnent les directions, les commandes principales, l'usage de la calculatrice et les symboles nécessaires. Les leçons traitent de la matière et de ses états: solide, liquide et gazeux, la théorie cinétique moléculaire, la calorimétrie, les équations et la terminologie. La troisième partie comprend la résolution de problèmes de chauffage ou de refroidissement, de mélanges simples, de changements d'état, de constantes de chaleur aussi bien que des questions complexes.

Puisque le programme est en français, toutes les unités métriques acceptées sur la disquette utilisent la virgule au lieu du point.

ÉVALUATION DU CONTENU PÉDAGOGIQUE

L'étendue et l'intensité de ce programme sont appropriées à la clientèle cible. Ce programme ne doit pas être absorbé par l'élève tout d'un coup mais plutôt, un peu à la fois, pendant plusieurs sessions ou même plusieurs niveaux. Microthermo se prête très bien au programme de sciences pour la neuvième année. Quoique ce programme soit quelque peu technique dans son approche, il est quand même facile à lire et exact. Les principaux concepts sont bien mis en évidence. On y donne aussi de bonnes définitions et explications. L'élève va peut-être au début, éprouver des difficultés pour trouver les informations à l'intérieur du programme, à cause de son menu incorporé à un menu global. Ce problème toutefois devrait être surmonté avec un peu de pratique. Le programme suit une séquence de concepts faciles à plus difficiles. L'élève a le choix de trois niveaux de difficulté mathématique pour les problèmes.

Le programme fait bon usage des symboles et de l'écriture des unités métriques du Système International. L'utilisateur a accès à toutes les tables et les formules nécessaires. Il peut y accéder en résolvant des problèmes. De cette façon, l'utilisateur n'a pas besoin de chercher ailleurs pour de l'information.

DESCRIPTION DES TYPES D'INTERVENTION PÉDAGOGIQUE

L'interaction de l'élève avec le programme comprend les étapes suivantes: entrer son nom, faire des sélections de menu, tourner des pages, résoudre des problèmes avec des fonctions calculatrices en tapant: la valeur numérique, les notations métriques SI et en sélectionnant les symboles à l'aide des touches de contrôle.

Les leçons sont présentées dans un ordre fixe. Les problèmes sont choisis au hasard par le programme à partir d'une banque de données limitée, après que l'élève a indiqué la partie et le niveau de difficulté qu'il/elle désire. Les problèmes fournissent toutes les informations nécessaires. Tout ce qu'on demande à l'élève c'est la réponse.

Le programme utilise les techniques de rétroaction positive, négative et corrective. Un message personnalisé félicite une résponse juste. Si une réponse n'est pas correcte après le deuxième essai, l'utilisateur reçoit un message personnalisé quelque peu brusque. Ceci est suivi d'une rétroaction corrective, qui le guide point par point (à l'aide de tableaux, de formules, d'explications et de définitions) à la bonne réponse et ce, toujours en demandant d'abord les questions pertinentes et ensuite on donne la réponse après le deuxième essai. Si l'utilisateur tient la touche RETURN abaissé, le programme va simplement "donner" toutes les réponses justes. Le programme ne contient pas de rétroaction quantitative.

Il n'y a ni pré-test ni post-test. Le branchement n'est pas disponible mais on fournit de l'aide à l'utilisateur qui éprouve des difficultés.

L'utilisateur contrôle la vitesse du programme en appuyant sur la touche RETURN. Il peut aussi contrôler l'ordre des leçons ou laisser le programme les présenter d'une façon séquentielle. La quantité est déterminée en partie par le programme et en partie par l'utilisateur.

ÉVALUATION DES TYPES D'INTERVENTION PÉDAGOGIQUE

L'utilisateur joue un role actif car il peut faire passer l'information aussi vite ou aussi lentement qu'il le désire.

Le programme peut être utilisé efficacement tant pour enseigner que pour revoir ou raffiner les connaissances des élèves sur la chaleur et ses effets. L'emploi de la fonction calculatrice raccourcit les longues opérations mathématiques sans pour autant perdre la valeur du problème. C'est quand même dommage que le programme nécessite seulement la réponse sans les calculations. La technique de rétroaction corrective, avec ses questions et ses répliques, est un point fort du programme.

Le fait que l'élève puisse choisir lui-même le niveau de difficulté à envisager peut le motiver. C'est dommage toutefois que l'enseignant/e n'ait aucune façon de vérifier les progrès des élèves. C'est aussi regrettable que l'utilisateur n'ait pas la chance d'indiquer le nombre de problèmes qu'il veut travailler, sans être retourné au menu principal après chaque question car cela sauverait du temps. L'accès à l'information pendant la résolution de problèmes, suivi par le retour au problème pour le finir, est très avantageux.

Des banques avec plus de données avantageraient le programme. L'utilisateur pourrait profiter d'une rétroaction quantitative pour vérifier ses progrès. Le branchement serait très utile pour aider celui qui éprouve des difficultés. Des pré-tests et des post-tests auraient fourni beaucoup d'information à l'enseignant/e.

Les types de contrôle dans le programme sont satisfaisants.

DESCRIPTION DES CARACTÉRISTIQUES TECHNIQUES

"Microthermo" utilise des caractères de grandeur normale, tant pour les lettres minuscules que les majuscules, ainsi que les caractères français accentués. Quelques-unes des instructions sont seulement en lettres majuscules, sans aucun accent. Le programme utilise l'éclairage inverse. Des diagrammes, des tableaux et des graphes avec des illustrations expliquent les concepts et leurs propriétés. Le programme commence par une simulation d'un liquide qui est chauffé au point d'ébullition.

ÉVALUATION DES CARACTÉRISTIQUES TECHNIQUES

Les affichages à l'écran sont généralement bien conçus. La grandeur des lettres est appropriée à la clientèle cible, mais les instructions en lettres majuscules sont un peu difficiles à lire sans les accents français appropriés. Les tableaux et les illustrations expliquent clairement les concepts. Les diagrammes ne sont pas ennuyeux car l'utilisateur peut les faire avancer plus vite s'il le désire. L'éclairage inverse est efficace pour mettre en évidence les informations importantes. L'absence de sons le rend pratique pour l'emploi dans la salle de classe. Le programme est lent à débuter mais il est possible de le faire aller plus vite en appuyant sur la touche RETURN.

DESCRIPTION DU MATÉRIEL D'APPUI

Afin d'utiliser ce programme, l'élève doit être familier avec les opérations arithmétiques et les éléments de l'algèbre. Il doit aussi avoir des notions sur l'énergie et la structure moléculaire de la matière.

"Microthermo" ne contient pas de système de gestion.

Un guide pour l'enseignant/e de 12 pages est inclus dans cet ensemble. Il comprend une table des matières, les objectifs, des suggestions pour des stratégies d'enseignement, des informations générales, des informations scientifiques, des formules et un schéma des menus qui se trouvent sur la disquette. La documentation explique aussi les touches de contrôle qui permettent l'accès aux informations, à la calculatrice, etc.

Aucun matériel de soutien n'a été inclus dans cet ensemble.

ÉVALUATION DU MATÉRIEL D'APPUI

Les compétences d'entrée sont clairement énoncées et sont appropriées aux élèves de neuvième année puisque l'utilisateur doit être familier avec l'ordre des opérations et les entiers relatifs. La valeur du programme diminue quand l'utilisateur n'a pas les connaissances de base en mathématiques. Les élèves plus faibles auront probablement besoin d'une préparation afin de profiter du programme.

La documentation est détaillée et facile à suivre. L'emploi du "?" pour l'inconnu, pour compléter les tableaux lors de la résolution de problèmes, aurait dû être mentionné à quelque part.

Le manque d'un système de gestion est une faiblesse car l'enseignant/e n'a pas de dossiers sur les progrès des élèves. Des feuilles de travail pourraient remplacer les pré-tests et les post-tests.

SOMMAIRE

Les points forts de "Microthermo" sont sa corrélation étroite avec le programme de sciences de neuvième année et sa rétroaction corrective. Soulignons aussi l'exactitude du programme, sa justesse comme exercice tutoriel ou de renforcement. Le fait que l'utilisateur peut s'arrêter durant un problème pour chercher de l'information et ensuite y retourner est très apprécié. Les différents niveaux de difficulté du programme le rendent approprié à une grande variété d'élèves.

C'est dommage qu'il n'y ait dans ce programme ni système de gestion, ni pré-tests et post-tests. D'autres faiblesses sont de demander seulement pour la réponse sans les calculations, de ne pas pouvoir indiquer le nombre de questions à faire sans avoir à retourner au menu principal après chaque question, et le manque de rétroaction quantitative et de branchement.

STATUT

Le programme "Microthermo" est reconnu comme ressource pédagogique de statut **SUPPLÉMENTAIRE** pour les élèves de neuvième année.

ACHAT

Ce programme est disponible du Centre franco-ontarien de ressources pédagogiques à l'adresse ci-haut mentionnée au coût de 69,95 $ (1987). Pour le même prix, une copie supplémentaire de la documentation peut être demandée au temps de l'achat. Un prix au rabais peut être obtenu pour un achat excédant 4 copies du programme. Une disquette de rechange peut être achetée pour 10,00 $.

Les disquettes fautives sous garantie seront remplacées sans frais, dans les 90 jours suivant l'achat.

A cause de l'interaction fréquente avec le programme, une disquette ne peut amorcer plus d'un ordinateur à la fois.

MILLIKEN WORD PROCESSOR

DESCRIPTION

Title: Milliken Word Processor
Authors: IOTA Inc, Suzanne Zemke & John Oberschelp
Publisher: Milliken Publishing Company
Source: c/o BLM, P.O. Box 2249, 175 Holiday Drive, Cambridge, ON N3C 3N4
Subject: Language Arts
Topics: Word processor
Components: 1 program disk with backup, 1 data disk, user's manual (50p.)
System Requirements: Apple II+/IIe/IIc, 48K, 1 disk drive, monitor, printer
Other Formats Available (not evaluated): IBM PC

Version: 1984
Display Language: English
Cost: LRDC Buyer's Guide
Tel. #: (519) 658-4621
Users: Grades 3 to 9

OBJECTIVES

This program is designed to provide an easy to use word processing system which allows students to concentrate on their thinking and composition skills rather than on handwriting and neatness.

EDITOR DESCRIPTION

Built-in document default values include a 65 space line, double spacing, and one inch top and bottom margins. File names must be no longer than 12 characters, including spaces, and document length is limited to 8406 characters. While individual characters can be deleted in the write mode, one must access the main menu to enact major changes (block moves, finding words, clearing a page, etc.). Commands are mneumonic and for the most part consist of single key entries. All operations are explained on screen, and a help screen is available at any time via the main menu. The arrow keys permit line by line scrolling and jumps to the beginning or end of a document can be accommodated. There appears to be no limit to the amount of material that can be moved in blocks and the ESC key can be used to cancel a move at any time. The search function will find any 12 character combination of letters, numbers or spaces but it does not offer an automatic replace.

EDITOR EVALUATION

Document creation is very straightforward and easy to learn. Document length restrictions are ample for elementary and junior high users. The restriction of 12 characters per file name proves very limiting and necessitates the use of abbreviations.

Editing functions are very easy to use as screen prompts guide the student through each step and a help screen is available at all times. Sound effectively draws attention to procedural errors. Scrolling is easily accomplished. The apparent lack of a length restriction on blocks of material to be moved combined with the use of inverse mode to highlight such moves are positive features.

The search function is weak as the program will search only to the first occurrence of the word; each subsequent occurrence will be accessed only by answering the question, "Do you want to find the word again?". This, combined with the fact that there is no automatic replace feature, makes the search function slow and awkward to use.

FILE MANAGEMENT DESCRIPTION

Documents can be saved/deleted with two keystrokes plus entering the name of the file. Both initializing and copying a disk requires the use of the system master disk.

The program is designed to interface with other programs produced by Milliken including: PreWriting, PostWriting, a Spell Checker, a Mechanics Checker, Writing Activities Files and Research Paper Activities.

FILE MANAGEMENT EVALUATION

The file management aspect of this word processing program effectively uses a drawing of a file cabinet for visual prompts and comparisons, thus making the process of saving and deleting easy to understand. Automatic indexing of stored files in alphabetic order helps in subsequent recall. Unfortunately, there are no direct means of renaming files; rather the file must be loaded into memory, saved under a different name, and the first file deleted. The file deletion process is easy to execute, and involves enough steps that accidental file deletion would be unlikely. While the program does not offer password security, the fact that additional copies of the File Cabinet disk can be purchased from the publisher allows each student to have an individual storage disk.

PRINTER DESCRIPTION

Printer specifications allow a printed line range of 20 to 80 characters, a choice of single, double or triple spacing; and a 5 space indentation using the TAB key. Pagination occurs automatically in response to the top and bottom margin widths entered by the user. Options for page number placement include top centre, bottom centre or total omission. Word wrap can not be disabled. A screen formatter illustrates a graphic representation of how the finished product will appear on paper.

PRINTER EVALUATION

The eight default printer specifications can be easily overridden, but unfortunately the new values can not be set and saved for future recall. The absence of automatic centring of titles, right hand justification, and tabulation features are weaknesses and the inability to disable word wrap prohibits the use of this program for table production. A pause feature in the printing process enables students to print one file immediately after another thus simulating a longer document capacity. While this program lacks many sophisticated print features found on more powerful programs (e.g. boldface, counter ability, macro key assignment, underlining, tabulation assignment, etc.), its limited powers make the print function easy to master.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The accompanying user's manual is divided into five sections: introduction, documentation (a reference guide to program use), student activities (suggestions for classroom implementation), teacher activities (suggestions for evaluation of student work), and extension activities (supplemental assignments).

IMPLEMENTATIONAL SUPPORT EVALUATION

The manual is clear and comprehensive and offers excellent organization. The "Easy Does It" page which summarizes the main commands and terminology allows for quick student familiarity with the program. It should be noted that the suggested student activities do not deal with instruction in using the word processor but rather with activities designed to stimulate, develop and perfect a student's writing skills.

SUMMATION

The format used by the word processing program of visually and textually comparing functions to everyday writing tools (paper, file cabinet, etc.) makes the program easy to learn and especially useful for an upper elementary and junior high audience. Student options and procedures are clearly outlined on screen and the manual provides a comprehensive overview of the program's capabilities. While the program offers sufficient power to accommodate letters and short reports, it is not suited to applications which require numerical alignment or more advanced word processing features. However, the program's ease of use and its adequate power would prove advantageous at an elementary or junior high level.

STATUS

"Milliken Word Processor" has been authorized as a **RECOMMENDED** learning resource for grades 3 to 9.

PURCHASE INFORMATION

Alberta schools may purchase this program from the Learning Resources Distributing Centre for $96.25 (1987). The LRDC will replace defective disks free of charge within 90 days of purchase. Disks that become inoperable through normal wear and tear can be replaced for $19.50 each within a thirteen month period from purchase.

The program disk has the advantage of being capable of operation in more than one computer at a time; however, such use is subject to copyright laws and any license or purchase agreement.

MOTION GEOMETRY

DESCRIPTION

Title: Motion Geometry
Author: Gemini Education Group
Publisher: Ginn and Company
Source: 3771 Victoria Park Avenue, Scarborough, ON M1W 2P9
Subject: Mathematics
Topics: Properties of rigid motion
Components: 2 disks with backups, teacher's guide (20p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, colour monitor required
Other Formats Available (not evaluated): Available only in Apple format

Version: 1983
Display Language: English
Cost: $69.95 (1988)
Tel. #: (416) 497-4600
Users: Grades 7 & 8

OBJECTIVES

As a result of using this program students will be able to recognize the three basic motions and the corresponding types of images produced, describe each of these motions, identify the two types of symmetry, and draw simple images.

PEDAGOGICAL CONTENT DESCRIPTION

The seven lessons presented in this package provide tutorial instruction in the three basic motions of geometry; slides, flips and turns. The concept of symmetry is also discussed. Students are first exposed to familiar objects and then transfer this knowledge of motion to geometric figures. The lessons lead students successively through the properties of rigid motion, the formation of images, and then through a study of the concepts of line (reflective) symmetry and turn (rotational) symmetry.

Lessons 1 and 2 are basically introductory in nature, lessons 3 - 7 provide self-contained units of instruction dealing with a single concept of motion geometry.

PEDAGOGICAL CONTENT EVALUATION

Although sequence is menu driven and therefore under user control, following the lessons in succession results in a logical pattern of instruction dealing first with the concrete, then moving to the abstract, and finally moving to a combination of concrete and abstract motions. Content range and depth are appropriate to the intents of the program and to the junior high target audience. The fact that students can have explanations and examples repeated is a program advantage.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of menu selection, page turning via the RETURN key, pressing the space bar for extra practice problems, and entering alpha and numeric inputs. Shapes and positions of polygons presented throughout the demonstrations are randomly selected. Feedback, presented after every question, consists of combination text and graphics. Cumulative scores listing the number correct, incorrect, or correct on the first try are given at the end of each series of questions.

Students initially control sequence via menu selection, however once in a lesson, sequence is program controlled. Both rate and amount of presentation are user controlled.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is consistent throughout the lessons and keys not required are effectively disabled. Questions are randomly drawn from a well developed question bank. The program is tolerant of a range of answer formats, and if the answer is correct but the format is wrong, the answer is scored as correct and an explanation of format is presented. Instructions for required input are effectively displayed at the top of the screen at all times. Feedback is effective, although it often results in a crowded screen. Perhaps removing the instructions before presenting the feedback would be less confusing. Although there is little variation in feedback, the animated graphics are most helpful in visualizing the motion concept.

The fact that there is no built-in evaluation and that the student can easily control the length of the lesson makes it difficult for a teacher to diagnose area of weakness or assess progress other than by direct observation.

TECHNICAL CHARACTERISTICS DESCRIPTION

Text appears in upper case standard size print with large lettering occasionally used for emphasis. Three main colours - red, green and blue - are used for animated diagrams. All screens are framed by a border. Sound is not used. The use of a colour monitor is essential to program operation.

TECHNICAL CHARACTERISTICS EVALUATION

The computer is an excellent tool for conveying motion concepts both because of the speed with which examples can be produced and the ability to depict movement. While text displays are clear and easy to read, graphics are somewhat distorted. A test screen is available to adjust the distortion level, but a certain amount of distortion seems inevitable.

The slow letter-by-letter printing of text on screen is distracting and the very slow removal of text and graphics proves annoying.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The twenty page teacher's manual includes operating instructions, equipment requirements, objectives, vocabulary terms, prerequisite skills, timing suggestions, and statements on the usage of the program and the subject matter covered. A student worksheet is provided to accompany each of lessons 3 - 7.

There is no management system.

IMPLEMENTATIONAL SUPPORT EVALUATION

Teacher documentation is well laid out and includes an excellent lesson plan for each program. Student support materials are helpful but could be more inclusive. The program is easy to use by persons with no previous computer experience.

The absence of a management system is a major disadvantage as it seems there is no way for a teacher to check student progress or to diagnose areas of weakness other than by direct observation.

SUMMATION

This program makes excellent use of the computer as a medium to depict motion and manipulate diagrams in order to instruct in motion geometry. Colour and animation add immensely to student understanding. Program weaknesses include slow character generation and removal, diagram distortion, and lack of a management system.

STATUS

"Motion Geometry" has been authorized as a **SUPPLEMENTARY** learning resource for grades 7 and 8.

PURCHASE INFORMATION

This product can be purchased for $69.95 (1988) from Ginn and Company at the address given at the beginning of this report. This program may be available locally, check with your software dealer.

The publisher provides a 90-day warranty (from the invoice date) on defective material.

Due to frequent disk interaction, this program may be used on only one computer at a time.

MOTION GEOMETRY - FLOPPY MATH

DESCRIPTION

Title: Motion Geometry
Series: Floppy Math
Authors: Woody Sparrow & John Ketelaars
Publisher: Nelson Canada Ltd
Source: 1120 Birchmount Road, Scarborough, ON M1K 5G4
Subject: Mathematics
Topics: Concepts of slides, flips & turns
Components: 1 disk with backup, teacher's guide (45p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, colour monitor preferred
Other Formats Available (not evaluated): Available only in Apple format

Version: 1985
Display Language: English
Cost: $99.95 (1988)
Tel. #: (416) 752-9100
Users: Grades 7 - 9

OBJECTIVES

The inferred objectives of this program are to provide students with practice in applying the concepts of motion geometry-in particular slides, flips and turns-to a decision making setting in which outcomes can be predicted and confirmed.

PEDAGOGICAL CONTENT DESCRIPTION

The "Motion Geometry" disk contains four programs:

The "Demonstration" shows slides and flips along horizontal, vertical and diagonal axes, rotations about various centers, and combinations of all three transformations. The demonstrations continually repeat, however the user may return to the menu at any time.

"Slides, Flips and Turns" is an interactive simulation which enables a shape (individually drawn or selected from a bank of thirty) to slide, flip or turn at user control. The image moves in a 3-D animated sequence. Previous images are kept until the user discards them and colours are used to distinguish working shapes from the final images.

In "Shapemate" the student is presented with a shape on the bottom left of the screen and a target shape on the upper right corner. Utilizing slides, flips and turns, while at the same time avoiding white walls, the student attempts to match the orientation of the target shape.

"Pods" asks the user the take a white shape on the right of the screen and within a time limit, use flips, slides and turns to match it to one of four possible positions on the left. Points are scored according to which match was achieved and the efficiency with which it was achieved.

PEDAGOGICAL CONTENT EVALUATION

This program offers good range and sequence; the demonstration program is effective in depicting the three transformations and the coloured animation acts as a visual tutorial. The "Slides, Flips and Turns" program allows students to practice with any or all of the transformations, "Shapemate" forces the student to add strategy to his or her moves, and finally "Pods" adds the element of timed efficiency to strategic transformations. Practice may be repeated for as long as desired, and when mastery has been achieved, moving to the next program adds a new dimension of interest. The animated sequences visually portray transformations in a way no textbook could ever hope to match. With the exception of the demonstration, the programs rely solely on visual explanation; some textual explanation may be in order, particularly for weaker students.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of pressing the SPACEBAR to stop animated sequences, pressing a letter to indicate the translation the student wishes to activate, using the arrow keys to erase an entry, hitting the RETURN key, and pressing ESCAPE to exit a program. A help option explains the symbols used (e.g. S=slide, T=turn, etc.). There are no direct questions posed for drill; instead students select one of 30 polygons and move them at will. Feedback is primarily visual; students can see with every move how close they are to accomplishing their goal, and a correct match elicits a pleasant sound. Incorrect moves combine sound with a message such as "Oops" or "Out of Bounds". The "Shapemate" activity keeps track of how many attempts were made at solving a problem, how many errors were made, and scores the number correct.

INSTRUCTIONAL FORMAT EVALUATION

The translation concepts are presented in a logical fashion and the interactive nature of the activities allows the user to learn by experimentation. Student control is excellent and the game format provides interesting yet educational instruction. The animated feedback gives instant feedback. The lack of disk instructions in the last three programs necessitates that the teacher be prepared to provide guidance.

TECHNICAL CHARACTERISTICS DESCRIPTION

High resolution graphics, animation and sound are employed throughout the programs. Textual displays are easy to read.

TECHNICAL CHARACTERISTICS EVALUATION

The animated graphics are very effective in achieving the intents of the program and in maintaining student interest. Since only two colours are used on any screen, the program can be used on a monochrome monitor with shading depicting the colour differences. Sound can be effectively disabled.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The 45 page teacher's guide contains program descriptions and instructions as well as a series of seventeen student worksheets to supplement the concepts of slides, flips and turns.

The program does not offer a management system.

IMPLEMENTATIONAL SUPPORT EVALUATION

The teacher's guide is well organized and clearly written with diagrams, definitions and sample frames included to enhance explanations. Gaining familiarity with the documentation is mandatory prior to disk operation since screen instructions are not offered.

The student worksheets effectively complement concepts presented in the programs.

SUMMATION

This program makes effective use of graphics and animation to visually explain the concept of geometric transformations.

STATUS

"Motion Geometry" has been authorized as a **SUPPLEMENTARY** learning resource for grades 7 to 9.

PURCHASE INFORMATION

This program may be purchased for $99.95 (1988) from Nelson Canada Ltd at the address provided at the beginning of this report. This program may also be available locally, check with your software dealer.

Defective disk can be replaced free of charge for a period of one year from date of purchase.

Due to frequent disk interaction, this program can be used on only one computer at a time.

NUMBER QUEST

DESCRIPTION

Title: Number Quest
Authors: Education Development Center & Dr Judah Schwartz
Publisher: Sunburst Communications
Source: P.O. Box 3240, Station F, Scarborough, ON M1W 9Z9
Subjects: Mathematics, Problem Solving
Topics: Using binary search strategies to find whole numbers, fractions & decimals
Components: 1 disk with backup, teacher's guide (30p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor
Other Formats Available (not evaluated): Available only in Apple format

Version: 1984
Display Language: English
Cost: $87.00 US (1988)
Tel. #: 1-800-247-6756
Users: Grades 7 - 9

OBJECTIVES

The inferred objectives of this disk are:

1. Enable students to use binary search strategies to find whole numbers, fractions and decimals.
2. Help students understand the order properties of integers, fractions, decimals, ordered pairs, and ordered triplets.

PEDAGOGICAL CONTENT DESCRIPTION

"Number Quest" contains a set of five programs in which the student must find a number or set of numbers that the program chooses at random:

1. ONE THOUSAND - Students search for a whole number between 1 and 1000 located on a line.
2. FRACTIONS - Students search for a fraction between 0 and one with 32 being the largest denominator.
3. DECIMALS - Students are asked to find a three-digit decimal number between 0 and 1.
4. NUMBERS IN A PLANE - This game, designed to supplement the teaching of ordered pairs and graphing concepts, asks students to locate a point in a plane. The X and Y coordinates of the plane each range from 0 to 100.
5. NUMBERS IN SPACE - Students are asked to locate a point in the form of a number triplet in a three-dimensional space where the X, Y and Z coordinates may range from 0 to 100.

PEDAGOGICAL CONTENT EVALUATION

Each of these games poses the same type of problem, namely a search. As students continue to work with the programs they discover that although there are many strategies for searching for points on a line, in a plane or in space, some strategies are more efficient. The program offers good overall sequencing, beginning with whole numbers and proceeding to decimals, coordinate pairs and coordinates in space. There is a lack of developmental sequencing within these programs but this should not be a significant problem.

A significant problem does exist however with the program on fractions. While the teacher management system allows some parameters in the program to be set, this would not likely help most students. This is an extremely difficult program to master and its use in the classroom would require an extreme amount of teacher assistance and interaction. Even then it would likely be beyond the capabilities of many students and its inclusion within the program of activities on this disk is highly questionable.

The programs on the disk are not intended to instruct but rather to provide a vehicle by which students can discover effective search strategies. The ability to "see" the graphic depiction of the search area will aid student understanding. Some trial and error experiences are necessary but teachers should ensure that a structured learning situation is set up in order that knowledge acquisition will be enhanced. As such, the use of this disk requires active management by the teacher. Once the search concepts have been identified, ample supplemental practice is offered as students may choose to do as many questions as desired.

INSTRUCTIONAL FORMAT DESCRIPTION

Students select a program from a menu. Within each program, questions are randomly selected from a large data base. Students have unlimited attempts at obtaining the correct answer, each input is graphically depicted, and the number of trials taken is noted on the screen. If an answer entry is out of range, the computer beeps and the trial is redone. In some programs, reinforcement consisting of a message and an audio sound is provided as progress in the determination of the solution is made. A successful answer is rewarded with a short melody. Quantitative feedback is not offered.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is easy and the provision of an unlimited number of trials for each question provides non-threatening drill and practice.

Immediate feedback is provided and the graphic displays indicating how close the user has come to the correct answer aid understanding. However, the use of the on-going feedback statements is questionable. After the student has narrowed the search area down to two places (and one place), a message appears informing him or her for example that, "The number is between 700 and 800 and begins with 7". As this message appears only upon student success in narrowing the search area (the student had to have entered a search area, for example, of 750 - 800 to get the message), its appearance is of no assistance whatsoever either in assisting students in need of help or in congratulating success. It tells the student information which he or she has already concluded and students in need of help cannot call for the clue when they need it. Also, with the abrasive tonal sound that accompanies this message (almost like a raspberry), the student could easily interpret the message as an admonition for not reaching this conclusion earlier.

The quantitative results at the end of each drill are interesting to the student but of little assistance. No idea is given as to how many trials should have been taken. That and the random selection of easy and difficult numbers prohibit the collection of accurate information on the student's progress. The fact that "out of range" entries are not counted in the total number of trials may also result in a misleading final student score.

It is unfortunate that the program does not offer a help screen for students encountering difficulty nor an overall summary of progress.

TECHNICAL CHARACTERISTICS DESCRIPTION

Text is displayed in combination upper/lower case lettering. Line graphs are used to indicate the area in which a number is located, and rectangular figures and cubes are used to display coordinates in a plane and in space. Sound can be disabled.

TECHNICAL CHARACTERISTICS EVALUATION

This program offers good technical design. The graphic displays are clear, screens are well formatted, and the text is appropriate in size and design. Expected user inputs are clearly designated and the student can exit from the program at any time. The option of disabling sound is a positive feature, particularly as the ongoing feedback sound is abrasive and the positive feedback sounds would become repetitive and distracting.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

A thirty page guide contains program descriptions and classroom implementation procedures. Several pages of the guide are used to introduce the concepts of search strategy and suggestions are made of how to introduce the concept in a classroom setting.

IMPLEMENTATIONAL SUPPORT EVALUATION

The program offers a nice variety of methods for introducing students to binary search strategies in the classroom. It is unfortunate that no provision is made either on disk or in the documentation for recording the cumulative progress of students using the programs.

SUMMATION

The instructional format of this disk makes it appropriate as a discovery as well as a practice tool. The best parts of the programs are likely the units on planes and space, particularly with the graphic depictions aiding student understanding.

The chief weaknesses of the programs are the lack of help screens or hint strategies, the absence of quantitative feedback, and the broad range of content which necessitates close teacher monitoring to ensure students are not working on programs above or below their abilities and that they are acquiring the necessary skills. The inclusion of the program on fractions is highly questionable.

STATUS

"Number Quest" has been authorized as a **SUPPLEMENTARY** learning resource for grades 7 to 9.

PURCHASE INFORMATION

This product may be purchased for $87.00 US (1988) from Sunburst Communications at the address provided at the beginning of this report. Lab packs, consisting of a teacher's guide and ten disks, may be bought for $260.00 US (1988) and a Corvus network version of this program is available for the same price. This program may also be available locally, check with your software dealer.

The publisher provides a lifetime warranty on any program component that is lost or damaged during normal school use.

Due to frequent disk interaction, this program may be used on only one computer at a time.

POWER DRILL

DESCRIPTION

Title: Power Drill: A Set of Estimation Games
Authors: Education Development Center & Dr Judah Schwartz
Publisher: Sunburst Communications
Source: P.O. Box 3240, Station F, Scarborough, ON M1W 9Z9
Subjects: Mathematics, Problem Solving
Topics: Estimating the results of computation problems using whole numbers
Components: 1 disk with backup, teacher's guide (19p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor
Other Formats Available (not evaluated): IBM PC/PCjr, Tandy 1000, Commodore 64, TRS-80 Models III/IV

Version: 1984
Display Language: English
Cost: $87.00 US (1988)
Tel. #: 1-800-247-6756
Users: Grades 7 - 9

OBJECTIVES

This program is designed to:

1. Help students gain facility in estimating the results of arithmetic computations.
2. Help students become familiar with the appropriateness of the order of magnitude for numbers resulting from computations.
3. Enable students to gain facility in performing mental arithmetic.
4. Help students to develop strategies to re-do difficult problems in simpler forms.
5. Help students to explore patterns in numbers and their operations.

PEDAGOGICAL CONTENT DESCRIPTION

This program deals with the estimation of whole numbers and offers four drill programs using the operations of addition, subtraction, multiplication and division. Each program offers three levels of difficulty. Level one uses the digits 100 - 999, level two ranges from 1,000 - 9,999, and level three from 10,000 to 99,999. Each program presents a series of problems with a missing operand which must be estimated. The object is to produce a close estimate of the answer in as few tries as possible.

PEDAGOGICAL CONTENT EVALUATION

Content range is appropriate to the target audience. The user has good control of sequence in that he or she may choose both the type of mathematical operation and the level of difficulty. Content depth is limited as there is no instruction and, notwithstanding the drill's use of four different operations with three ranges of numbers, only one kind of learning activity is provided.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of program selection from a menu, difficulty level selection, optional sound selection, entry of a number estimate, and use of the ESCAPE key to exit programs. Feedback, which is provided after every response, consists of the computer performing the calculation using the student's estimate and then presenting the resulting equation either above or below the posed question (depending whether the estimate was too high or too low). As the student makes subsequent estimations, the feedback equation will replace the previous low or high estimate. When a correct answer is obtained, the program displays the number of tries taken to get that answer. If answers are ridiculously high or low the program will respond with "Way too big" or "Way too small" and will then provide the student with a clue.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is straightforward, consistent, and allows for easy correction of entries. Questions are effectively randomized and an unlimited number of trials per question are allowed.

Teachers should be aware that there will likely be confusion in correctly interpreting the placement of the estimates above and below the posed question for subtraction and division questions. In addition and multiplication questions, a LOW estimate will result in a LOW sum or product and the answer will appear above the line. In subtraction and division a LOW estimate will result in a HIGH difference/quotient and the answer will still appear above the line. The observation of these patterns is one of the objectives of the program; teachers will need to be prepared to provide assistance.

Feedback is limited to presenting the answer that results from the user's estimate; prompts or clues are given only for extremely incorrect answers. Teachers should note that the method of providing feedback may allow the student to arrive at the correct answer in a number of different ways. Using estimation, the student may determine that he or she is off by 300 in a multiplication question involving a multiplicand of 100. The student may then conclude that the original number should be increased (or decreased) by three. However, once low and high estimates are entered, the student may arrive at the correct answer using binary search problem solving techniques (the desired product is about half way between the two estimated products and therefore the missing multiplicand will be half way between the other two estimated multiplicands). While this is a valuable skill to be practicing, the teacher may not be aware that the desired skills are not being used. This kind of problem could occur throughout the program in a number of different ways as the student may arrive at the correct answer, but there is no provision for determining if any of the objectives of the program have been met.

It is unfortunate that no quantitative feedback is provided. This increases the need for the teacher to closely monitor each student's performance.

TECHNICAL CHARACTERISTICS DESCRIPTION

The program uses large combination upper/lower case print. Flashing is used to draw attention to answers. Sound can be disabled.

TECHNICAL CHARACTERISTICS EVALUATION

Type size is appropriate, sound can be effectively disabled, and flashing is effective as a cueing technique.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The nineteen page teacher's guide provides an overview of program contents, suggestions for classroom implementation, program objectives and sample program runs.

IMPLEMENTATIONAL SUPPORT EVALUATION

The teacher's guide is well-organized and easy to understand. It is unfortunate that the program does not offer a management system to enable teachers to assign programs and difficulty levels and to provide a permanent record of student progress.

SUMMATION

This program is easy to use and offers a framework within which practice in developing estimation skills can be given.

Weaknesses of the program include the lack of instruction, the dependency on only one approach, the absence of cumulative feedback, and the lack of a management system. The program has some potential for use in the classroom but the teacher should be prepared to provide the necessary instruction and to monitor closely the students' performance to ensure that the desired skills are being practiced.

STATUS

"Power Drill: A Set of Estimation Games" has been authorized as a **SUPPLEMENTARY** learning resource for grades 7 to 9.

PURCHASE INFORMATION

This product may be purchased from Sunburst Communications for $87.00 US (1988) at the address provided at the beginning of this report. Lab packs, consisting of one teacher's guide and ten program disks, or a Corvus network version are available for $260.00 US (1988) each. This program may also be available locally, check with your software dealers.

The publisher provides a lifetime warranty on all program components that become lost or damaged during normal school use.

This is a "multi-load" program that can loaded completely into the computer's memory, the disk removed, and the process repeated for as many computers as the user wishes. Sunburst Communications gives permission for this to be done (see page 19 of the teacher's guide).

QUATIONS

DESCRIPTION

Title: Quations
Author: Edaptive Software
Publisher: Scholastic Inc
Source: 123 Newkirk Road, Richmond Hill, ON L4C 3G5
Subject: Mathematics
Topics: Math game using a Scrabble type format
Components: 1 disk with backup, user's guide (15p.), 1 game board, 1 reference card
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, colour monitor preferred
Other Formats Available (not evaluated): Available only in Apple format

Version: 1985
Display Language: English
Cost: $54.95 (1987)
Tel. #: (416) 883-5300
Users: Grades 4 - 6

OBJECTIVES

This program is designed to increase the student's math skills (operations with whole numbers) and to improve his or her planning and problem solving abilities.

PEDAGOGICAL CONTENT DESCRIPTION

This program is a "crossmath" game which is played on a Scrabble type board using math equations instead of words. The game involves the formation of correct whole number equations using the basic operations of addition, subtraction, multiplication and division. Users determine at the beginning of the game which operations may be used, the level (beginner or advanced) and the time limit (if any). One to three players may play with or without "Quato", the computerized math bird. Each player is given six number tiles and seven operation tiles for each turn. Points are determined by the number of tiles used and the value of each tile. Covering bonus squares adds to the player's score. The game continues until there are no more tiles left or until all players quit making equations. The student with the highest number of points is the winner. In the beginner's level, the computer adds up the score after each turn while the player must add the scores correctly in the advanced level to get points.

PEDAGOGICAL CONTENT EVALUATION

The range of content is appropriate to the target audience with the student having the choice of one to four operations or combinations of them. Younger users can limit their choices to one digit and the operations which they are able to handle. Older students will be able to use equations which are much more complex and the option of time limits can make the game more challenging for them. The choice of beginner and advanced levels is beneficial since the younger target audience may have difficulty with the scoring system. The program provides ample practice for adequate skill development. The fact that "Quato" the computer bird can be beaten adds to the interest of the game.

Although the sample program is intended to provide an opportunity for the users to learn how to use the program, the speed with which the sample proceeds and the readability level of the explanations will likely be difficult for the younger target audience in their initial use of the program.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of name entry; menu selection, using directional or arrow keys to move the cursor; using "H" for help, "Q" to indicate a completed equation, "S" to skip a turn, "T" to trade tiles, and ESC to return to the menu. The student must choose the number of tiles he or she wishes to use in each equation and input the equation on the game board. A timing option is available (1 minute, 3 minutes, 5 minutes or untimed). The number and operation tiles are randomly selected.

Positive feedback consists of the program accepting the created equation with points for that turn added to the previous score. If an incorrect equation is provided, the computer indicates that it is not correct. In addition, the student receives no points for that turn, the tiles are returned to the user's section and it is the opponent's turn. Cumulative scores are displayed at the end of the game. The three top scores recorded on the disk are included in an honour roll.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is appropriate with the student being an active participant. The game format is motivating and encourages the users to develop better problem solving strategies in order to get higher scores. Most students should find the program easy to use; however, younger users will likely need some assistance in their first game. Some students may find the use of pencil and paper beneficial in working out more complex calculations since a calculator function is not available.

The randomization of number and operational tiles provides unlimited use of the program at various levels of difficulty, depending upon the user's choice. The feedback is appropriate for the game format in most cases; however, no assistance is offered with the negative feedback. Thus students will not receive any assistance in determining why their equation or their score keeping was wrong.

TECHNICAL CHARACTERISTICS DESCRIPTION

The program uses high resolution graphics with some animation for the "Quato" character. Upper and lower case letters are used in the text. The game board has coloured tiles; however, the program can be used on a monochrome monitor where the tiles appear in different patterns. Sound is optional. Some highlighting is used.

TECHNICAL CHARACTERISTICS EVALUATION

The technical characteristics are a strength in this program. The size of text, highlighting, colour and graphics are used effectively. Although the program can be used with a monochrome monitor, the game board shows up much better on a colour monitor. The displays are easy to read; however, the transition from one display to another in the sample game is too fast for the younger target audience. Program operation is relatively simple and reliable.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

No entry competencies are specified. This program does not include a management system. The teacher documentation consists of an introduction to the program, information on program operation, game rules, scoring, screen displays, strategy tips, and rules summary. A reference card is supplied to summarize the use of special keys and to provide a rules summary for student use. Also, a sheet which provides tips for playing the game and an erasable game card which can be used for recording equations are included in the package.

IMPLEMENTATIONAL SUPPORT EVALUATION

Although no entry competencies are specified, the teacher will need to provide an orientation to the program and its rules for the younger target audience. It may be beneficial to give the students a trial run before using the computer program. The fact that up to three students can use the program at a time is an asset when computer time is limited. The nature of the game format does not necessitate a management system; however, it would be helpful for the teacher to receive some feedback on student success.

The teacher documentation is concise but adequate. The teacher needs to emphasize the starting point of equations since the supplementary sheet which indicates this may be overlooked. Perhaps, it would be more effective to include this information on the reference card rather than on a separate sheet.

This program is relatively easy to implement in a classroom and only minimal supervision will be required once the students understand the game process.

SUMMATION

The interesting and enjoyable game format which motivates students to use problem solving strategies and thinking skills at various levels of difficulty is the major strength of this program. The students learn to increase their scores by making longer equations, using larger numbers, creating more advanced operations and covering bonus squares. The effective use of colour and graphics, the ease of use of the program, the appropriate user control, and the fact that an unfinished game can be saved are further advantages.

Weaknesses of the program include the sample game which moves too quickly and the explanations of the rules which are difficult, especially for the younger target audience. Negative feedback is inadequate as no explanation is provided for incorrect equations or scores. However, the major weakness of the program will revolve around the question of whether the computer is being used in an effective manner. It should be noted that much of the motivation and value of this program is likely due to the basic game format rather than to what the computer version of the game provides. In effect, this is a computerized board game with the computer being used to distribute tiles, verify equations and serve as a master score keeper (in the beginner's level). Thus, while the game's content and motivational capabilities would likely be beneficial in the classroom, some teachers may feel that the cost of a computer version of a board game is unwarranted.

STATUS

"Quations" has been authorized as a **SUPPLEMENTARY** learning resource for grades 4 to 6.

PURCHASE INFORMATION

This product can be purchased for $54.95 (1987) from Scholastic Inc at the address provided at the beginning of the report. Extra backup disks are available for $30.00 each and bulk purchase discounts of 10% are provided on orders of ten or more per software title. This program may be available locally, check with your software dealers.

Defective disks can be replaced at no charge within a 60 day warranty period. Subsequently, there is a one year warranty on damaged disks which can replaced for a fee of $10.00 per disk.

Due to frequent disk interaction, this program can be used on only one computer at a time.

SAFARI SEARCH

DESCRIPTION

Title: Safari Search
Author: Dr Thomas C. O'Brien
Publisher: Sunburst Communications
Source: Box 3240, Station F, Scarborough, ON M1W 9Z9
Subject: Problem Solving
Topics: Developing problem solving skills by deciphering clues hidden in a grid
Components: 1 disk with backup, teacher's guide (34p.)
System Requirements: Apple II+/IIe/IIc/IIgs, 48K, 1 disk drive, monitor
Other Formats Available (not evaluated): IBM PC/PCjr, Tandy 1000

Version: 1985
Display Language: English
Cost: $87.00 US (1988)
Tel. #: 1-800-247-6756
Users: Grades 2 - 6

OBJECTIVES

The stated purposes of this program are to cause children to construct complex mathematical thinking; to provide an arena in which children invent and extend problem solving tactics; to call upon children to collect, organize and use information; to provide an arena in which children learn that their own thinking is important; and to enable children to work in collaboration with each other and to enjoy themselves while doing so.

PEDAGOGICAL CONTENT DESCRIPTION

This program consists of twelve search games on a 5 by 5 "Safari" layout. The first six programs deal with the player finding one animal in the grid; the next six programs involve finding two animals. Various problem solving strategies are used which increase in difficulty and involve making inferences, inventing tactics, collecting data and organizing information. Students must not only collect information but they must judge the importance of the information and weave it in with previous data. The easiest activity uses random guessing while all other activities involve problem solving tactics using clues such as: hot/warm/cold, rectilinear distances, whether or not the object can be seen from the present location, and the direction the animal is from the present location. Each game generally takes from two to ten minutes, depending upon the game and the age of the user. Collaborative work (two or three students at a time) is encouraged.

PEDAGOGICAL CONTENT EVALUATION

The range, sequence and depth of these programs are all good. This package has effective sequential development by beginning with very easy games and extending to very difficult ones. Depth is appropriate as a user may play as many games (within one program or from another level of difficulty) as desired. The format and challenge of the games is sufficiently motivating and varied to be of interest to students of various ages and abilities.

Instructions are concise and clear and are suitable for most of the target audience; however, some of the younger students will likely need assistance. The programs provide a vehicle for practicing problem solving strategies; however, there is no instruction either directly or indirectly through the feedback and, as a result, teachers will have to monitor student progress closely to provide appropriate guidance and assistance.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of menu selection, using the arrow keys to move "X" to the box that is to be checked, pressing the RETURN key to open and close boxes, pressing "R" for review and pressing ESC to guess a box. CONTROL-E is used to exit a game and the RETURN key is used for page turning.

Each game is based on arrays which are randomly generated. The user may play the same game again (in the event that his or her answer was wrong) or may do another game with clues and answers arranged differently.

Feedback is provided after all user responses. Graphic feedback is provided only after the correct solution, while audio feedback is provided with each response. A correct solution results in a graphic depiction of the animal, a congratulatory sound and a short text message. Failure to locate the animal results in a large "Sorry" and a negative sound. Hints and clues are provided during the attempted solution. Quantitative feedback provides the number of clues required to solve the problem.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is appropriate and effective in assisting the student to learn various problem solving strategies. This program is not intended to teach students, but it allows the students to be actively involved in learning to invent problem solving tactics. The questioning techniques with the random placement of the animals and the provision of clues and hints are effective. The usability of the program with small groups enhances the learning experience.

The positive feedback is immediate and generally appropriate. However, there is no assistance provided with negative feedback. The program does not give the answer to the puzzle nor does it provide any hints on appropriate strategies. While clues are available, these are really only the results of the student's problem solving strategies and must be interpreted by the student. Also, although quantitative feedback is available to the user, this only shows the number of steps that were needed to solve the problem. There is no evaluation of the effectiveness of this number and, as such, the student is given no idea of whether a particular strategy is effective or not. Motivation to continue with a particular program and to try and improve scores would be enhanced with evaluative statements, rating levels (e.g. 10 clues makes you a safari leader), and/or honour roll scores. Unfortunately, there is no quantitative feedback available to the teacher and this absence makes his or her task of monitoring student progress and helping the students develop appropriate strategies much more difficult than is necessary.

TECHNICAL CHARACTERISTICS DESCRIPTION

Graphics, colour and sound are used in this program. The arrays and text are large. Instructions are in regular size text with upper and lower case letters.

TECHNICAL CHARACTERISTICS EVALUATION

The displays are well-designed with appropriate character size. Graphics and colour are used effectively; however, the program can also be used on a monochrome monitor. It is unfortunate that sound is not an option, particularly when the program is being used in a classroom.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

This program does not include a management system or user support materials. The teacher documentation includes a brief rationale, the purpose of the games, a detailed overview of each game, an evaluation and program operating instructions.

IMPLEMENTATIONAL SUPPORT EVALUATION

The inclusion of a management system to keep track of each student's progress would be beneficial to the teacher and would enhance the program's use. The teacher documentation contains sufficient information for easy use of the program on an individual or small group basis. Students will require a minimal amount of supervision.

SUMMATION

The major strengths of this package are the large number of different activities that are available and the sequence from easy to difficult in which they are arranged. The motivating and challenging game format encourages the development of logical and inductive thinking skills.

As with most problem solving programs, the teacher will have to monitor student progress closely to ensure that they are trying appropriate strategies and that they are not becoming frustrated. The program does not provide much assistance with this task as it does not really give assistance to a user having difficulty. Also, it does not provide help to the teacher in terms of quantitative feedback and a management system is notably missing. As such, classroom implementation is somewhat hindered. However, the provision of a wide range of motivating activities that will provide ample opportunities for practicing problem solving strategies would make this package an effective resource within a full classroom unit.

STATUS

"Safari Search" has been authorized as a **SUPPLEMENTARY** learning resource for grades 2 to 6.

PURCHASE INFORMATION

This product may be purchased from Sunburst Communications for $87.00 US (1988) at the address provided at the beginning of the report. Lab packs, containing one teacher's guide and ten disks, and/or a Corvus network version are provided for $260.00 US (1988). This program may be available locally, check with your software dealers.

Sunburst Communications includes a replacement warranty on all components for the life of the product. This warranty covers components that are defective, lost, stolen or damaged during normal school use. Also, program updates and improvements are provided at no charge if the purchaser indicates on the order form that he or she wants them.

Due to frequent disk interaction, this program can be used on only one computer at a time.

SCIENCE TOOLKIT MASTER MODULE

DESCRIPTION

Title: Science Toolkit Master Module
Authors: Scott Shumway & Lauren Elliot
Publisher: Broderbund Software
Source: 17 Paul Drive, San Rafael, CA 94903-2101
Subject: Science
Topics: Science interface toolkit to conduct various experiments
Components: 1 program disk, 1 demo disk, teacher's guide (89p.), user's guide (127p.), 1 light probe, 1 temperature probe, 1 interface box
System Requirements: Apple II + (with joystick port adapter) IIe/IIc/IIgs, 64K, 1 disk drive, monitor, printer (optional)
Other Formats Available (not evaluated): Available only in Apple format

Version: 1985
Display Language: English
Cost: $89.95 US (1987)
Tel. #: (415) 479-1170
Users: Grades 4 - 12

OBJECTIVES

Specific learning objectives for each experiment are stated in the teacher's guide. The program is intended to stimulate interest in scientific discovery through experimentation and allow the user to read, analyze, manipulate, and record data involving light, temperature and time inputs

PEDAGOGICAL CONTENT DESCRIPTION

This program is an electronic tool which combines hardware and software as a recording device to conduct "real" rather than simulated experiments and investigations. It allows students to perform experiments involving temperature differences and changes in the intensity of light within specified time frames. This program interfaces two sensory probes (a thermistor and a photocell) with the computer through an interface box which is plugged into the joystick port. The thermistor can be used to measure temperature ranging from -12 to 60 degrees Celsius while the photocell reacts to changes in light ranging from 0 to 500 foot candles.

The program disk contains four on-screen instruments - a thermistor, a light meter, a timer and a strip chart. Used with the sensory probes, these instruments form the core of the electronic science lab. The timer allows the user to measure time from 0.01 seconds to 99 hours. The computer records and displays information in two formats. The strip chart graph changes in light or temperature for a period of time up to 24 hours while the log shows the same changes in a table format. Students can review their results on the strip chart by scrolling back and forth using the arrow keys. The program also permits the user to save experimental data on a separate data disk and to obtain a printout of the data.

The user's manual provides 27 sample experiments in various science subjects including physics, chemistry, biology and botany. Three other modules are available to be used with "Science Toolkit Master Module"; these are "Speed and Motion", "Earthquake Lab" and "Body Lab". These modules are not included in this evaluation.

PEDAGOGICAL CONTENT EVALUATION

Although the target audience of grades four to twelve is indicated, it is unlikely that students below the junior high level would be able to perform the suggested experiments without considerable teacher assistance and supervision. The vocabulary and the level of conceptualization may be too difficult for them. However, this program may be effectively used as a demonstration tool. Some limitations in using this program at the high school level may result from the fact that the thermistor registers only to a maximum of 60 degrees Celsius.

The range of content is appropriate for most of the target audience, but there is insufficient depth to meet the curricular needs at all grade levels. However, additional experiments can be designed by the teachers and students to provided more depth to the program. This program can be used effectively to supplement and enrich the science concepts taught by the teacher.

The suggested experiments are interesting and relevant to the current curriculum. The program includes both Celsius and Fahrenheit scales for temperature; however, it is unfortunate that only foot candles are used and not the more metrically acceptable unit of lumens.

The computer is an excellent and most effective medium for this program. It serves as a tireless monitoring device.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of selecting the measurement tool (thermistor, light meter, a timer or a strip chart); performing disk operations (load, save, delete files, initialize a disk or catalogue a disk); reviewing and printing the data; and setting up the system (defining the printer specifications and adjusting the sensors). Choice of tools will depend on the type of experiment being carried out.

Since this program is a tool, there is not the typical questioning techniques and feedback provided that are normally present in computer programs. However, the user's guide contains questions relating directly to the experiments and scientific principles involved, and it includes questions intended to encourage additional experimentation and application of the principles to new situations. The teacher's guide outlines each experiment's goal, lists vocabulary and suggests evaluation and extension activities.

The feedback is in the form of data which is presented on the screen during the experiment. This information can be saved on a data disk and printed as a log.

The user controls the flow of the program through the selection of experiments and the choice of tools and variables to be used in performing the selected experiment.

INSTRUCTIONAL FORMAT EVALUATION

The student interaction is appropriate and effective with the users being actively involved in the experiments. The program is relatively easy to use provided the instructions in the manual are followed and the program is supervised. This program promotes the scientific method of inquiry and provides an interesting learning experience. Safety precautions are highlighted and are stressed in the documentation.

Since the intent of this program is to provide an opportunity to perform experiments rather than provide instruction, the instructional format does not contain the usual questioning techniques. This program is based on the feedback from incorporating real data into simulated instruments which the user can access. The student is able to see a graph on the screen indicating what the sensors have been finding over a specified period of time. The data provided by the on-screen instruments is effective and accurate. The information gained from the data collection can be used to teach the scientific method, averaging, graphing, and manipulation of variables. Students are encouraged to analyze and compare the data to form scientific theories and conclusions.

TECHNICAL CHARACTERISTICS DESCRIPTION

Colour, sound and graphics are used in this program. Sound is used for temperature warning, input errors, and light measurement. Two sensory probes, the thermistor and photocell, are included along with an interface terminal. Colour and monochrome monitors were used in the evaluation of this product.

TECHNICAL CHARACTERISTICS EVALUATION

Screen displays are clear and character size is appropriate. Colour, graphics and sound are used effectively and add to the strength of the program. However, this program can also be used with a monochrome monitor. The hardware, including the probes, is easy to use and is durable provided that the students observe the cautions stated in the user's guide. Although the program is relatively easy to use, students will need supervision and some assistance to understand its applications.

Although the data can be printed in a table or log format, it is unfortunate that the student is unable to print the graphs that are created on the screen. It means that students must graph the data from the log by hand. The thermistor range of -12 to 60 degrees Celsius is limiting for some experiments. It is also noted that the temperature probe is somewhat slow in reacting to temperature changes.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

Entry competencies are not clearly identified in the documentation. However, the user's guide touches briefly on the concepts of averaging and graphing. There is no management system in this program.

The teacher's guide provides experiment objectives and lesson plans organized in table form for quick and easy reference. It also outlines each experiment's goal, lists vocabulary and suggests evaluation and extension activities. The teacher's guide is intended to assist the teachers in adapting the experiments presented in the user's guide to their own class. The "User's Manual & Experiment Guide" describes the operation of the hardware and software, outlines 27 experiments that can be performed using the program, and outlines suggestions for experimentation in general as well as extensions to the experiments described.

IMPLEMENTATIONAL SUPPORT EVALUATION

Entry competencies are not specified; however, students will require some knowledge of the scientific process and the ability to manipulate data. They must also be fully aware of the cautions required in using the program.

The teacher's guide in this package is a strength. The lesson plans, instructional objectives, questions for helping students draw conclusions from their experiments and extension activities are very helpful to the teacher.

The user's guide is comprehensive. The instructions for using the tools are clear. It provides valuable information and good ideas which can be used effectively in conjunction with the teacher's guide.

To implement this program for effective use with a class, a teacher must be prepared to spend sufficient time on preparation and supervision. Added user materials will need to be prepared and additional experiments will likely be required to meet the curriculum needs of a specific class. The program can be used effectively with students working independently, in pairs or small groups. However, teacher supervision will be required while the experiments are carried out, particularly when the experiments involve liquids. Even though ample cautions are provided in the user's guide, careless spillage could ruin a computer.

This program is an excellent demonstration tool that can be used effectively with small groups or classes. This approach is particularly useful when the number of computers is limited.

SUMMATION

This program has excellent potential for use in the science program. The major strength is that it promotes the development of the scientific inquiry process in an interesting and motivating way. Users are encouraged to perform experiments, make observations, collect and analyze relevant data, and formulate scientific theories and conclusions. Students use the computer to conduct "real" experiments in a variety of areas by using the on-screen instruments and external sensory probes to maker accurate measurements. The computer also serves as a monitoring and recording device. In addition, this program is excellent as a teacher directed demonstration tool. The documentation provides valuable information and assistance; however, considerable teacher time is required for preparation and supervision to achieve the maximum benefits of this program.

The main weaknesses include the lack of metrication in the experiments dealing with light, the inability to print the graphs that are presented on the screen, and the limitations caused by the maximum temperature of 60 degrees Celsius.

STATUS

"Science Toolkit Master Module" has been authorizaed as a **SUPPLEMENTARY** learning resource for grades 4 to 6.

PURCHASE INFORMATION

This product may be purchased for $89.95 US (1987) at the address provided at the beginning of the report. Lab packs are also available, which include a teacher's guide and 5 disks. This product may also be available locally, check with your software dealer.

Broderbund Software provides a 90-day warranty on all programs plus a 30-day preview period.

THE SUPER FACTORY

DESCRIPTION

Title:	The Super Factory	**Version:**	1986
Authors:	Mike Fish & Marge Kosel	**Display Language:**	English
Publisher:	Sunburst Communications	**Cost:**	$87.00 US (1988)
Source:	Box 3240, Station F, Scarborough, ON M1W 9Z9	**Tel. #:**	1-800-247-6756
Subjects:	Problem Solving, Mathematics	**Users:**	Grades 5 & 6

Topics: Manipulating three dimensional objects, duplicating pictures on the faces of a cube

Components: 1 disk with backup, teacher's guide (48p.)

System Requirements: Apple II+/IIe/IIc/IIgs, 64K, 1 disk drive, monitor

Other Formats Available (not evaluated): IBM PC/PCjr, Tandy 1000

OBJECTIVES

This program is designed to:

1. Provide students with an environment in which they can manipulate and become familiar with the properties of a three-dimensional cube.
2. Teach students the four steps of problem solving.
3. Provide students with a way of approaching and tackling a problem through classroom lessons.

PEDAGOGICAL CONTENT DESCRIPTION

This program promotes strategies involved in solving three-dimensional problems. It includes analyzing a process, looking for sequence, working backwards, and analyzing creativity. It also involves spatial perception, visual reasoning, and rotation. The program consists of the following three sections:

1. RESEARCH - allows the student to experiment with a cube and become familiar with the mechanics of the program.
2. DESIGN - allows the student to build cubes at a more advanced level. Students design a plan to create a cube consisting of pictures and rotations in which the pictures do not appear until the plan has been executed.
3. CHALLENGE - offers four levels of difficulty (easy, medium, hard and super) in which the user is challenged to duplicate the challenge cube which has pictures on two of its six faces. The process requires the user to analyze, plan, try and check the user's plan against the challenge cube. The fifth level, Challenger, presents cubes from a maximum of twenty which the teacher or students have saved from the design level.

PEDAGOGICAL CONTENT EVALUATION

The pedagogical content is appropriate for the target audience in that it offers sufficient flexibility to motivate students with the rudimentary skills as well as provide more complex challenges to the accomplished users. Excellent sequencing supplies the students with ample opportunity to explore, manipulate, and investigate the properties of a cube. Good depth is provided through effective explanations and solutions for the challenge routines which can be accessed for viewing. The content is accurate and develops problem solving skills which are applicable to other areas of the curriculum.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of menu selection, choosing the level of difficulty, selecting pictures for the faces of a cube, and using page turning devices. The user can backup, edit, insert, change and check.

The problems presented in the Challenge section are randomized within each level and consist of cubes with two or more picture designs on the faces which are to be duplicated by the user. The Challenger level appears only if cubes which are made in the design section are saved.

Graphic and textual feedback are provided. Once a cube has been produced by the user, a graphic comparison is made with the original. The user is told whether the cube is the same or different. An audio beep draws the user's attention to the comparison. Try, Check, and Help routines assist the student to arrive at the correct answer. The program provides information as to what help, if any, was used and the number of steps used to design the cube.

No pre- or post-tests are given in the program. The comparison of the user's cube to the challenge cube is the criteria used for evaluation.

Sequence, rate and amount are controlled by the user. The teacher has control of the designs which will be saved in the Challenger subroutine.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is consistent and appropriate with the student being an active participant. Program interaction is easy and maintains the student's attention. The method of inquiry manipulation used in the computer controlled sequence is excellent. Students are given ample experience in problem solving strategies while they research and design cubes at various levels of difficulty. The fact that an option is provided for changing the pictures to simple geometric designs makes the program suitable for a wide range of learning abilities. When first using the program, students should be encouraged to begin at the first section and then advance through each part. Some of the younger target audience may find this program very challenging.

Feedback is appropriate; however, the inclusion of hints in addition to the Help routines would be beneficial for the less able users. The graphic comparisons which are used in evaluating the cubes are very good. The branches are user selected and appear to be suitable. The user control in the program is appropriate.

TECHNICAL CHARACTERISTICS DESCRIPTION

Text appears in several combinations utilizing upper and lower case letters. Graphics, colour and optional sound are included.

TECHNICAL CHARACTERISTICS EVALUATION

Displays are effective and easy to read. Text, graphics and sound are used effectively; however, sound can be disabled in a classroom setting. The inverse screen makes it somewhat difficult to see the cursor in the planning stage. Although colour is used, the program can be used on a monochrome monitor. The program is user friendly.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

Student activities beginning with lesson one, which explores three-dimensional objects, and working through to lesson four, which reviews problem solving steps and strategies, are recommended. A fourth grade (FRY) reading level is recommended.

No management system is included; however, there is an option which allows the teacher to have designs saved to be used in the Challenger section.

The 48 page teacher's guide contains an introduction to the program, the instructional objectives, a description of each part of the program and how to use it, four classroom lessons with eight reproducible activity sheets, and information of field test observations.

IMPLEMENTATIONAL SUPPORT EVALUATION

The suggested teaching activities are effective in preparing students to use the program. The teacher's guide is well organized and easy to follow. It contains good suggestions for implementing the program. The user support materials are effective and contribute to developing problem solving strategies with three-dimensional figures, primarily the cube. This package can be used by a teacher with minimum computer competency and will require minimal supervision.

SUMMATION

This program provides an excellent medium for experimenting with a three-dimensional figure, a cube, and for developing problem solving strategies of analyzing, planning, implementing the plan and checking it out. The instructional design actively involves the student and is motivating and challenging. The graphics add an important dimension to the learning process. The program offers good user control and is easy to use.

STATUS

"The Super Factory" has been authorized as a **SUPPLEMENTARY** learning resource for grades 5 and 6.

PURCHASE INFORMATION

This product may be purchased from Sunburst Communications for $87.00 US (1988) at the address provided at the beginning of the report. Lab packs, consisting of one teacher's guide and ten disks, can be purchased from the same source for $260.00 US (1988). This program may be available locally, check with your software dealers.

Sunburst Communications includes a replacement warranty on all components for the life of the product. This warranty covers components that are defective, lost, stolen or damaged during normal school use. Also, program updates and improvements are provided at no charge if the purchaser indicates on the order form that he or she wants them.

Sunburst Communications allows the user to remove the disk once it is loaded and put it into another computer provided the user is not in the Change option or using the Save option in the Design level (see page 48 of the teacher's guide).

TEDDY'S PLAYGROUND

DESCRIPTION

Title: Teddy's Playground
Authors: Donna Stanger & Lon Koenig
Publisher: Sunburst Communications
Source: Box 3240, Station F, Scarborough, ON M1W 9Z9
Subject: Problem Solving
Topics: Discriminating between colours & shapes
Components: 1 disk with backup, teacher's guide (60p.)
System Requirements: Apple II+/IIe/IIc/IIgs; 48K; 1 disk drive; colour monitor required; joystick, Apple Mouse or Muppet Learning Keys (optional)
Other Formats Available (not evaluated): Available only in Apple format

Version: 1985
Display Language: English
Cost: $87.00 US (1988)
Tel. #: 1-800-247-6756
Users: K - Grade 4

OBJECTIVES

The program is designed to promote the recognition of critical and variable attributes in the formation of both concrete and abstract concepts. The program provides specific practice in recognizing changes in attributes, manipulating attributes, sorting by attributes, and using attributes to complete analogies.

PEDAGOGICAL CONTENT DESCRIPTION

The program provides a problem solving environment in which students must recognize attributes to play games. The attributes of shape, colour and shading are incorporated into three game settings.

In the "Slide" game, the student is required to select three shapes that are different in only one attribute from one shape to the next. There are two levels of difficulty within the first slide game. Successful completion of the two levels allows the students to progress to the "Big Slide" game and the "Bumpy Slide" game which present more difficult problems dealing with changes in attributes within a sequence of shapes.

In the "See-Saw" game the student organizes shapes according to one kind of attribute. Successful completion of the first level of play allows the student to continue to the second level containing more difficult problems.

The "Swing" games are picture sentences that form analogies involving the comparison of changes in attributes. Success with the first "Swing" game allows the student to move on the second game which contains more difficult analogies.

PEDAGOGICAL CONTENT EVALUATION

The content of the program is generally appropriate and effectively presented. While directions on program use are provided, they are at a grade four level and will prove difficult for much of the K to 4 target audience. On the other hand, the content of the program and its level of activities might preclude use with the upper grade levels and make it more suitable for kindergarten through grade two.

The program's content is effectively presented in a progression from simple to difficult. The program's range and sequence ensure that as the student's skill in recognizing attributes increases, the level of difficulty also increases. Since the more difficult levels of play open only after a student has been successful with the previous level, the play remains appropriate for the ability level of the student. However, this does mean that advanced students must first go through the easy levels.

Adequate depth is ensured as the student can continue to play indefinitely. Many of the questions contain different possible answers and therefore student creativity is enhanced.

INSTRUCTIONAL FORMAT DESCRIPTION

Student interaction consists of using the space bar as a page turning device and to pick up and drop shapes, letter or arrow keys for cursor movement, and the RETURN key to confirm answers. The keyboard, joystick, Apple Mouse or Muppet Learning Keys may be used as input devices.

Feedback is provided after all student responses and consists of textual, graphic, and sound messages. The student has two opportunities to enter the correct response before the program provides the answer. If an incorrect response is entered, the program will provide the message, "Sorry, That's Wrong" and a suggestion is given to consider the appropriate attribute. Correct responses receive the message, "Right" as well as a graphic and sound display appropriate to each game.

The program rate, amount and sequence are controlled by the student. The program controls the access to the higher levels in each game.

INSTRUCTIONAL FORMAT EVALUATION

Student interaction is consistent and appropriate for most members of the target audience. However, the differences in input devices used will affect the difficulty of interaction for the students. The use of a joystick or mouse will likely be easier for students than keyboard manipulation. Teachers should be aware of the fact that students will need previous instruction on program operation. Also, students will have to be reminded to push the RETURN key in order to have the program evaluate their final answer.

There are a number of problems with the feedback as, basically, the feedback techniques are motivational but not instructional. Positive feedback is appropriate but negative feedback does not provide extra instruction on attribute sequencing or sorting, nor does it provide reinforcement of the attributes that have been used in a particular problem. If an error has been made, there are no hints to assist the student in finding the correct answer. The presentation of the final answer provides no additional explanation as to why it is considered correct. Often the presentation of the correct answer is obscured by the player's game piece which can not be moved without erasing the screen. Also, screen transition between the student's last attempt and the final answer is very brief. Students may not realize that a change has been made and may not study the solution. Animation and explanations would be advantageous.

There is no quantitative feedback available to the student or teacher that detail the number of right or wrong answers, nor is any information on student progress provided to the teacher. Finally, the answer judging requires the shape to be placed accurately; the program does not give any feedback for errors in student input. Although the program's continuous format provides varied and unlimited activities for the student to work on, there is no closure to the program. Students are not given any indication of how they have done on each level and for each game.

TECHNICAL CHARACTERISTICS DESCRIPTION

The program uses larger than normal upper and lower case text; colour, sound and animated graphics are included in screen displays. A colour monitor is essential to the use of this program.

TECHNICAL CHARACTERISTICS EVALUATION

The technical quality of the program is generally good. The program incorporates colour, sound and animated graphics effectively to provide student motivation.

Screen displays are generally well designed. However, movement of the shapes can be awkward as it is often necessary to go around graphics on the screen. Also, the shapes must be placed in the exact correct position for the answer to be accepted as a correct response.

The lack of directions and examples on game play would make the initial use of the program somewhat difficult for the younger members of the target audience.

IMPLEMENTATIONAL SUPPORT DESCRIPTION

The reading level of the information on the help screens is at a grade four level. The teacher documentation includes a program rationale, a problem solving skill matrix, a program description, classroom lesson plans, and transparency masters. The documentation also provides activity sheets for student use. The activity sheets are used in conjunction with the lesson plans to introduce students to the concepts.

IMPLEMENTATIONAL SUPPORT EVALUATION

The concepts should be explored with students before using the program, as the documentation suggests. Teachers should also be prepared to spend time with students, especially the younger ones, on program operation, using the input devices, and entering their responses to the problems.

The documentation provides a well developed set of lesson plans and activities which will aid in classroom implementation and achievement of program objectives.

SUMMATION

The program is well suited to the computer medium and provides valuable practice in working with the problem solving skills of recognizing critical and variable attributes. The content range, sequence and depth is generally relevant and appropriate to the target audience, in particular kindergarten through grade two. The instructional format is motivational and the technical quality is satisfactory. The documentation is effective and contributes to the ease of implementation in the classroom.

Despite the strong motivational aspects of the program, the feedback techniques detract from its instructional value. Feedback does not provide sufficient assistance to the student encountering difficulty nor is the teacher given any useful information on student progress. Keyboard manipulation could be difficult initially and students will have to be instructed on the use of input devices and answer entry. These weaknesses can be countered by close monitoring of student progress in the initial stages.

STATUS

"Teddy's Playground" has been authorized as a **SUPPLEMENTARY** learning resource for kindergarten to grade 4.

PURCHASE INFORMATION

This product may be purchased from Sunburst Communications for $87.00 US (1988) at the address provided at the beginning of the report. The publisher also provides a lab pack consisting of one teacher's guide and ten disks for $260.00 US (1988). The program may also be available locally, check with your software dealers.

Sunburst Communications includes a replacement warranty on all components for the life of the product. This warranty covers components that are defective, lost, stolen, or damaged during normal school use. Also, program updates and improvements are provided at no charge if the purchaser indicates on the order form that he or she wants them.

Sunburst Communications allows this disk to be taken out of the computer after the program has been loaded and put into another computer (see page 60 of the teacher's guide).

SUMMARY OF AUTHORIZED COURSEWARE
JANUARY 1983 TO DECEMBER 1986

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
BUSINESS EDUCATION						
Alphabetic Keyboarding	South-Western Publishing Co.	7-12	● •	●	R	4
Apple Writer IIe	Apple Computer	10-12	● •		R	4
Appleworks (Version 2.0)	Apple Computer	10-12	● •		B	5
Automated Accounting for the Microcomputer	South-Western Publishing Co.	10	● •	●	S	4
Automated Accounting for the Microcomputer (Canadian Version)	Gage Publishing	10	● •	●	R	5
Bank Street Writer (64K/128K Version)	Scholastic Inc.	10-12	● •	O	R	4
Boyd's Clothiers	South-Western Publishing Co.	10	● •	●	S	5
Enable Learn (Version 2.0)	The Software Group	10-12		●	B	6
Enterprise Sandwich Shops	McGraw-Hill Ryerson Ltd.	11-12	● •	●	R	5
Format II (Enhanced)	Kensington Microware	10-12	●		R	4
Free Enterprise	Science Research Associates	11-12	● •	●	R	5
Gregg Keyboarding for Information Processing	McGraw-Hill Ryerson Ltd.	7-12	● •		S	4
Integrated Accounting (Education Version 3.20)	Bedford Software	10-12		●	B	7
Microcomputer Activities for Record Keeping	Houghton Mifflin Canada Ltd.	10-12	● •	O	R	5
Microcomputer Keyboarding	South-Western Publishing Co.	7-12	● •	●	R	4

KEY TO ABBREVIATIONS

Status (Resource Authorization)
- B Basic
- R Recommended
- S Supplementary

Volume (Location of Complete Evaluation Report)
- 4 - Computer Courseware Evaluations January 1983 to May 1985
- 5 - Computer Courseware Evaluations June 1985 to March 1986
- 6 - Computer Courseware Evaluations April 1986 to December 1986
- 7 - Computer Courseware Evaluations January 1987 to December 1987

(Volumes 1-3 are reprinted in Volume 4)

Apple/IBM
- ● Authorized by Alberta Education
- O Available but not evaluated by Alberta Education
- • Compatible with Apple IIgs

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
BUSINESS EDUCATION (continued)						
Microcomputer Oriented Accounting	South-Western Publishing Co.	10	● •	●	S	4
Microsoft Word	Microsoft Corporation	10-12		●	B	6
Money Manager	CAE Software	10-12	● •		S	6
Palmetto Insurance Co.	South-Western Publishing Co.	11-12	● •		S	5
Power-Base	Powerbase Systems Inc.	10-12		●	B	6
Reflex-The Data Base Manager	Borland International	10-12		●	B	6
Screenwriter II	Sierra	10-12	● •		R	4
Simulated Computer	Edusoft	10-12	●		S	4
Sounds Abound: An Accounting Simulation	Houghton Mifflin Canada Ltd.	10-12	● •	O	R	5
Touchtype	Software Spirit	10-12	● •		R	5
Twin (The)	Mosaic Software	10-12		●	B	6
Video Galley Sales & Service: An Automated Accounting Simulation	South-Western Publishing Co.	10-11	● •	O	S	5
Whatsit Corporation (The)	Sunburst Communications	10-12	● •	O	S	5
WordPerfect	WordPerfect Corporation	10-12	● •	●	B	6
Wordstar 2000 Plus	Micropro International Corp.	10-12		●	B	6
COMPUTER LITERACY						
Alphabetic Keyboarding	South-Western Publishing Co.	7-12	● •	●	R	4
Apple Presents Apple	Apple Computer	4-10	●		S	5
Computer Science I	Mindscape Inc.	10-12	● •	O	S	6
Gregg Keyboarding for Information Processing	McGraw-Hill Ryerson Ltd.	7-12	● •		S	4
Mastertype	Scarborough Systems	4-9	● •	O	S	5

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
COMPUTER LITERACY (continued)						
Microcomputer Keyboarding	South-Western Publishing Co.	7-12	● •	●	R	4
Micros Made Easy	Science Research Associates	4-9	● •	●	S	5
Simulated Computer	Edusoft	10-12	●		S	4
Spectrum	Sunburst Communications	4-9	● •		S	5
Superkey	Bytes of Learning	4-9	●•		S	6
Visible Computer: 6502 (The)	Software Masters	10-12	●		S	5
Visible Computer: 8088 (The)	Software Masters	10-12		●	S	5
FINE ARTS						
Magic Piano	Edusoft	2-6	● •		S	7
FRENCH						
Apple Présent Le Apple IIe	Apple Computer	3-6	● •		S	7
Appleworks (French Version 1.4)	Apple Computer	4-12	● •		B	5
Associations 2	Éditions FM	3-9	● •		S	6
Différenciations	Éditions FM	6-10	● •		S	6
French Achievement I: Vocabulary	Mindscape Inc.	10-12	● •	●	S	6

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FRENCH (continued)						
French Grammar Computerized I	Lingo Fun Inc.	10-12	● •	●	S	7
Homophones grammaticaux	Éditions FM	5-12	● •	O	S	6
Je conjugue	Éditions AD LIB Inc.	4-9	● •		S	7
L'Écrivain Public De Luxe	Logidisque Inc.	5-9	● •		R	6
Math-Thématique 3	Houghton Mifflin Canada Ltd.	3	● •		R	5
Math-Thématique 4	Houghton Mifflin Canada Ltd.	4	● •		R	5
Math-Thématique 5	Houghton Mifflin Canada Ltd.	5	● •		R	5
Math-Thématique 6	Houghton Mifflin Canada Ltd.	6	● •		R	5
Méga-texte (Apple Version)	Québit Logiciels	ECS-3	●	O	R	7
Microthermo	Centre franco-ontarien de ressources pédagogiques	9	● •		S	7
LANGUAGE ARTS						
Bank Street Writer (64K/128K Version)	Scholastic Inc.	4-12	● •	●	R	4
Cloze Plus Level C	Milliken Publishing Co.	2-5	● •		S	6
Cloze Plus Level D	Milliken Publishing Co.	3-6	● •		S	6
Cloze Plus Level E	Milliken Publishing Co.	4-6	● •		S	6
Cloze Plus Level F	Milliken Publishing Co.	5-6	● •		S	6
Cut and Paste	Electronic Arts	7-9	●	●	S	6
Easy as ABC	Springboard Software	1-2	● •	O	S	5
Fay: The Word Hunter	Didatech Software	3-6	● •		S	6
Fay's Word Rally	Didatech Software	2-6	● •		S	5
Hinky Pinky Game (The)	Mindscape Inc.	4-6	● •		S	6
How Can I Find It?	Sunburst Communications	4-6	● •		S	6
How to Identify the Main Idea	Science Research Associates	5-9	● •		S	6

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
LANGUAGE ARTS (continued)						
M-ss-ng L-nks: Classics, Old and New	Sunburst Communications	6	● •	O	S	6
M-ss-ng L-nks: Microencyclopedia	Sunburst Communications	4-6	● •	O	S	6
M-ss-ng L-nks: Young People's Literature	Sunburst Communications	4-6	● •	O	S	6
Magic Slate	Sunburst Communications	2-6	● •		R	7
Magic Spells	The Learning Company	2-6	● •	O	S	5
Milliken Word Processor	Milliken Publishing Co.	3-9	● •	O	R	7
Newsroom (The)	Springboard Software	4-9	● •	●	S	6
Quill	D.C. Heath Canada Ltd.	5-12	● •		S	5
Reader Rabbit & the Fabulous Word Factory	The Learning Company	1-2	● •	O	S	5
Spell It!	Davidson & Associates Inc.	4-9	● •	O	S	6
Stickybear Opposites	Weekly Reader Family Software	1	● •		S	5
Subject-Verb Agreement	Mindscape Inc.	6	●		S	6
Word Attack	Davidson & Associates Inc.	4-9	● •	O	S	6
Word Quest	Sunburst Communications	4-6	● •		S	6
Word Spinner	The Learning Company	2-6	● •	●	S	5
Writing Activities & Language Skills Builders	Scholastic Inc.	5-9	● •	●	S	5

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LANGUAGE ARTS (continued)						
Writing Skills Bank	Scholastic Inc.	7-9	● •	●	S	5
MATHEMATICS						
Adding Fractions	Mindscape Inc.	5-8	● •	●	S	5
Algebra Drill & Practice I	Conduit	9-12	● •	O	S	5
Algebra Drill & Practice II	Conduit	10-12	● •	O	S	5
Algebra Word Problems II: Area, Perimeter & Lever	Mindscape Inc.	10	● •		S	7
Algebra Word Problems III: Mixture, Coin & Investment	Mindscape Inc.	8-10	● •		S	5
Alien Addition	Developmental Learning Materials	1-6	●	O	S	4
Alligator Mix	Developmental Learning Materials	1-6	●	O	S	4
Basic Math Techniques	Merlan Scientific Ltd.	7-12	● •		S	4
Bumble Games	The Learning Company	ECS-5	● •	●	S	4
Bumble Plot	The Learning Company	3-6	● •	●	S	4
Carrying: Regrouping for Addition	Renaissance Learning Systems	3-4	● •		S	7
Code Quest	Sunburst Communications	4-7	● •	O	S	5
Computer Graphing Experiments Volume I	Addison-Wesley Publishers	10-12	● •		R	4
Computer Graphing Experiments Volume 2	Addison-Wesley Publishers	10-12	● •		R	4
Computer Graphing Experiments Volume 3	Addison-Wesley Publishers	10-12	● •		R	4
Count and Add	Edusoft	ECS-4	● •		S	4
Counters	Sunburst Communications	1	● •		S	5
Demolition Division	Developmental Learning Materials	1-6	●	O	S	4

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
MATHEMATICS (continued)						
Dividing Fractions	Mindscape Inc.	7-8	● •	●	S	5
Dragon Mix	Developmental Learning Materials	1-6	●	O	S	4
Early Games for Young Children	Springboard Software	1	● •	O	S	5
Equations	Mindscape Inc.	7-11	● •	●	S	6
Equations II	Mindscape Inc.	8-11	● •	●	S	5
Equations III	Mindscape Inc.	10-12	● •		S	6
Estimation	Lawrence Hall of Science	1	● •		S	5
Explorer Metros	Sunburst Communications	4-9	● •		S	4
Exploring Tables and Graphs Level 1	Weekly Reader Family Software	3-4	● •		S	5
Exploring Tables and Graphs Level 2	Weekly Reader Family Software	5-6	● •		S	5
Exponential Notation	Merlan Scientific Ltd.	7-12	● •		S	4
Factoring Algebraic Expressions	Mindscape Inc.	10	● •	●	S	5
Factory (The)	Sunburst Communications	4-9	● •	O	S	5
Fast Facts	Edusoft	1-6	● •		S	5
Fay: That Math Woman	Didatech Software	2-3	● •		S	5
Fraction Factory	Springboard Software	3-6	● •	O	S	5

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MATHEMATICS (continued)						
Fractions/Decimals	Sterling Swift Publishing Co.	7-9	● •		S	4
Geometric Concepts: Area	Jostens Learning Systems Inc.	6-9	● •		S	5
Geometric Concepts: Perimeter	Jostens Learning Systems Inc.	5-9	● •		S	5
Geometric Supposer: Triangles (The)	Sunburst Communications	4-10	● •		S	6
Graphing Equations	Conduit	10-12	●		S	5
Graphing Linear Functions	Mindscape Inc.	9-10	● •	●	S	5
Green Globs & Graphing Equations	Sunburst Communications	10-12	● •	O	S	5
Integers/Integer Fast Facts	Edusoft	4-9	● •		S	5
It's Mathematics 4	Gage Publishing Co.	1-4	● •		S	5
King's Rule (The)	Sunburst Communications	4-9	● •	O	S	5
Learning About Numbers	C & C Software	1-4	● •		S	5
Math Blaster	Davidson & Associates Inc.	1-6	● •	O	S	5
Math Sequences	Milliken Publishing Co.	1-8	● •		R	5
Math Strategies: Problem Solving	Science Research Associates	6-12	● •		S	5
Math Voyager	Computer Learning Services	2-6	● •		S	5
Mathematics Activities Courseware 1 (MAC 1)	Houghton Mifflin Canada Ltd.	1	● •	O	R	6
Mathematics Activities Courseware 2 (MAC 2)	Houghton Mifflin Canada Ltd.	2	● •	●	R	6
Mathematics Activities Courseware 3 (MAC 3)	Houghton Mifflin Canada Ltd.	3	● •	●	R	5
Mathematics Activities Courseware 4 (MAC 4)	Houghton Mifflin Canada Ltd.	4	● •	●	R	5

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
MATHEMATICS (continued)						
Mathematics Activities Courseware 5 (MAC 5)	Houghton Mifflin Canada Ltd.	5	● •	●	R	5
Mathematics Activities Courseware 6 (MAC 6)	Houghton Mifflin Canada Ltd.	6	● •	●	R	5
Mathematics Activities Courseware 7 (MAC 7)	Houghton Mifflin Canada Ltd.	7	● •	●	R	5
Mathematics Activities Courseware 8 (MAC 8)	Houghton Mifflin Canada Ltd.	8-9	● •	O	R	7
Mathematics: Level A	Science Research Associates	1-2	● •		R	5
Mathematics: Level B	Science Research Associates	3-4	● •		R	5
Mathematics: Level C	Science Research Associates	5-6	● •		R	5
Mathematics: Level D	Science Research Associates	7-9	● •		R	5
Measurement	Merlan Scientific Ltd.	7-12	● •		S	4
Meteor Multiplication	Developmental Learning Materials	1-6	●	O	S	4
Minus Mission	Developmental Learning Materials	1-6	●	O	S	4
Miscellaneous	Merlan Scientific Ltd.	7-12	● •		S	4
Motion Geometry	Ginn and Company	7-8	● •		S	7
Motion Geometry	Nelson Canada Ltd.	7-9	● •		S	7
Multiplying Fractions	Mindscape Inc.	5-8	● •	●	S	5
Number Farm	Developmental Learning Materials	1	● •	O	S	5
Number Quest	Sunburst Communications	7-9	● •		S	7

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MATHEMATICS (continued)						
Percents	Media Materials	6-9	● •		S	5
Piece of Cake	Springboard Software	1-6	● •	O	S	5
Power Drill	Sunburst Communications	7-9	● •	O	S	7
Problem Solving in Algebra	Encyclopedia Britannica	8-12	● •		S	5
Quations	Scholastic Inc.	4-6	● •		S	7
Ratios and Proportions	Media Materials Inc.	6-9	● •		S	5
Simultaneous Linear Equations	Mindscape Inc.	9-11	● •	●	S	5
Solving Fractional Equations	Mindscape Inc.	10-12	● •		S	6
Solving Quadratic Equations	Mindscape Inc.	9-12	● •	●	S	4
Spectrum	Sunburst Communications	4-9	● •		S	5
Stickybear Math I	Weekly Reader Family Software	1-4	● •	O	S	5
Stickybear Numbers	Weekly Reader Family Software	1	● •	O	S	5
Stickybear Shapes	Weekly Reader Family Software	1	● •		S	5
Subtracting Mixed Fractions	Mindscape Inc.	7-8	● •	●	S	5
Super Factory (The)	Sunburst Communications	5-6	● •	O	S	7
Whatsit Corporation (The)	Sunburst Communications	10-12	● •	O	S	5
Whole Numbers	Sterling Swift Publishing Co.	1-9	● •		S	4
PROBLEM SOLVING						
Code Quest	Sunburst Communications	4-7	● •	O	S	5
Factory (The)	Sunburst Communications	4-9	● •	O	S	5
Gears	Sunburst Communications	7-9	● •	O	S	7
Triturates Puzzles	The Learning Company	1-6	● •	O	S	4

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PROBLEM SOLVING (continued)						
Gertrude's Secrets	The Learning Company	ECS-4	● •	●	S	4
In Search of Wargo: Zandar III & IV	SVE	4-6	●		S	7
King's Rule (The)	Sunburst Communications	4-9	● •	O	S	5
Logic Builders	Scholastic Inc.	2-6	● •		S	6
Math Strategies: Problem Solving	Science Research Associates	2-6	● •		S	5
Mathematics Activities Courseware 1 (MAC 1)	Houghton Mifflin Canada Ltd.	1	● •	O	R	6
Mathematics Activities Courseware 2 (MAC 2)	Houghton Mifflin Canada Ltd.	2	● •	●	R	6
Mathematics Activities Courseware 3 (MAC 3)	Houghton Mifflin Canada Ltd.	3	● •	●	R	5
Mathematics Activities Courseware 4 (MAC 4)	Houghton Mifflin Canada Ltd.	4	● •	●	R	5
Mathematics Activities Courseware 5 (MAC 5)	Houghton Mifflin Canada Ltd.	5	● •	●	R	5
Mathematics Activities Courseware 6 (MAC 6)	Houghton Mifflin Canada Ltd.	6	● •	●	R	5
Mathematics Activities Courseware 7 (MAC 7)	Houghton Mifflin Canada Ltd.	7	● •	●	R	5
Mathematics Activities Courseware 8 (MAC 8)	Houghton Mifflin Canada Ltd.	8-9	● •	O	R	7

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PROBLEM SOLVING (continued)						
Memory: A First Step in Problem Solving	Sunburst Communications	1-6	● •	●	S	5
Moptown Hotel	The Learning Company	2-4	●	O	S	5
Moptown Parade	The Learning Company	1-3	● •	O	S	5
Number Quest	Sunburst Communications	7-9	● •		S	7
Power Drill	Sunburst Communications	7-9	● •	O	S	7
Rocky's Boots	The Learning Company	3-6	● •	●	S	4
Safari Search	Sunburst Communications	2-6	● •	O	S	7
Spectrum	Sunburst Communications	6-10	● •		S	5
Super Factory (The)	Sunburst Communications	5-6	● •	O	S	7
Teddy's Playground	Sunburst Communications	ECS-4	● •		S	7
Tonk in the Land of Buddy Bots	Mindscape Inc.	1-3	● •	●	S	6
PRODUCTIVITY						
Apple Writer IIe	Apple Computer	10-12	● •		R	4
Appleworks	Apple Computer	10-12	● •		B	5
Bank Street Writer	Scholastic Inc.	4-12	● •	●	R	4
Cut and Paste	Electronic Arts	7-9	●	●	S	6
Enable Learn	The Software Group	10-12		●	B	6
Format II	Kensington Microware	10-12	●		R	4
Magic Slate	Sunburst Communications	2-6	● •		R	7
Microsoft Word	Microsoft Corporation	10-12		●	B	6
Milliken Word Processor	Milliken Publishing Co.	3-9	●	O	R	7
Newsroom (The)	Springboard Software	4-9	● •	●	S	6
Power-Base	PowerBase Systems Inc.	10-12		●	B	6

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PRODUCTIVITY (continued)						
Quill	D.C. Heath Canada Ltd.	5-12	● •		S	5
Reflex - The Database Manager	Borland International	10-12		●	B	6
Screenwriter II	Sierra	10-12	● •		R	4
Touchtype	Software Spirit	10-12	● •		R	5
Twin (The)	Mosaic Software	10-12		●	B	6
WordPerfect	WordPerfect Corporation	10-12	● •	●	B	6
Wordstar 2000 Plus	Micropro International Corp.	10-12		●	B	6
SCIENCE						
Basic Concepts	Merlan Scientific Ltd.	12	● •		S	5
Basic Electricity	Programs for Learning Inc.	10-12	● •		S	4
Basic Math Techniques	Merlan Scientific Ltd.	7-12	● •		S	4
Cellular Reproduction	Merlan Scientific Ltd.	11	● •		S	5
Compete	Conduit	10-12	● •		S	4
Electrical Energy	Merlan Scientific Ltd.	12	● •		S	5
Explorer Metros	Sunburst Communications	4-9	● •		S	4
Exponential Notation	Merlan Scientific Ltd.	7-12	● •		S	4

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SCIENCE (continued)						
Flame Life	Queen's University	6 & 9	● •		S	5
Fundamental Skills for Chemistry	Programs for Learning Inc.	10-12	● •		S	4
Haber	Conduit	10-12	● •		S	4
Hydrogen Spectrum	Heinemann Computers in Education	12	●		S	5
Ideal Gases	Compress	10-12	● •		S	5
Introduction to Circuits	Merlan Scientific Ltd.	12	● •		S	5
Lenses	Heinemann Computers in Education	12	●		S	5
Longitudinal Wave Demonstrator	Merlan Scientific Ltd.	11	● •		S	5
Measurement	Merlan Scientific Ltd.	7-12	● •		S	4
Measurements: Length, Mass and Volume	Focus Media Inc.	4-8	● •		S	5
Microchem	Collier MacMillan Canada Ltd.	10-12	● •		S	4
Miscellaneous	Merlan Scientific Ltd.	7-12	● •		S	4
Oil Drop	Edutech	12	● •		S	5
Parabolic Motion	Edutech	10	● •		S	5
Periodic Motion	Merlan Scientific Ltd.	11	● •		S	5
Periodic Waves: Basic Concepts	Merlan Scientific Ltd.	11	● •		S	5
Prelab Studies Part I: General Chemistry	John Wiley & Sons Canada Ltd.	10-12	● •		S	5
Ray Tracer	Vernier Software	10-12	● •		S	5
Resistance	Merlan Scientific Ltd.	12	● •		S	5
Rocky's Boots	The Learning Company	3-6	● •	●	S	4
Science Toolkit Master Module	Broderbund Software	4-6	● •		S	7
T. Rex: The Dinosaur Survival Adventure	Mindscape Inc.	5-6	● •		S	5

TITLE	PUBLISHER	GRADES	APPLE	IBM	STATUS	VOLUME
SCIENCE (continued)						
Transverse Waves	Heinemann Computers in Education	11	●		S	5
Water Pollution	Educational Materials & Equipment	11	● •		S	5
Wave Addition II	Vernier Software	11-12	● •		S	5
Wave Demonstrations	Merlan Scientific Ltd.	11	● •		S	5
Waves in a Linear Medium: Introduction	Merlan Scientific Ltd.	11	● •		S	5
Waves in a Linear Medium: Superposition	Merlan Scientific Ltd.	11	● •		S	5
Writing Chemical Formulas	Mindscape Inc.	10	● •		S	5

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OTHER EVALUATION SOURCES

PRINT SOURCES

Many other agencies in Canada and the United States are evaluating microcomputer software and providing valuable information. A list of some of the software evaluation sources is provided for your information.

TITLE: Apple K-12 Curriculum Software Reference Guides

DESCRIPTION: A series of publications matching curriculum objectives to high quality software specific to the Apple family of computers for teachers working in science (K-12), language arts (K-6, 6-12) and mathematics (K-6, 6-12). Guides for other curriculum (e.g., social studies) areas are under development.

PRICE: $40.00 (CDN) per publication

TO ORDER OR FOR MORE INFORMATION CONTACT: Apple Education Dealers

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TITLE: Only the Best: The Discriminating Software Guide for Preschool - Grade 12

DESCRIPTION: This publication reports on the newest education software winners - programs that have received the most agreement on excellence by the 30 agencies evaluating software.

PRICE: $21.95 (US)
$23.95 (US) if billing is required

TO ORDER OR FOR MORE INFORMATION CONTACT:
Education News Service
P.O. Box 1789
Carmichael, CA 95609
Phone: (916) 488-4623

TITLE: The 1987 Educational Software Preview Guide

DESCRIPTION: This publication lists software that has been reviewed by a consortium of 27 private and/or non-profit agencies. Over 600 software programs are listed.

PRICE: $10.50 (US) prepaid
$13.00 (US) if billing is required

TO ORDER OR FOR MORE INFORMATION CONTACT:
International Council for Computers in Education (ICCE)
University of Oregon
1787 Agate Street
Eugene, OR 947403
Phone: (503) 686-4414

PRINT SOURCES (cont'd)

TITLE: The Educational Software Selector (T.E.S.S.)

DESCRIPTION: A publication with over 3500 review citations which include computer configuration, grade levels, publisher information and price.

PRICE: $59.95 (US) for 1986-87 T.E.S.S. and 1987 supplement
$32.95 (US) for 1987 supplement only

TO ORDER OR FOR MORE INFORMATION CONTACT:
EPIE Institute
P.O. Box 839
Water Mill, NY 11976
Phone: (516) 283-4922

TITLE: MicroSIFT

DESCRIPTION: MicroSIFT distributes reports on software for applications in curriculum areas (e.g., word processors for language arts, second languages, keyboarding, databases for science, mathematical function plotters).

PRICE: Prices range from $3.00 to $8.00 (US) per report

TO ORDER OR FOR MORE INFORMATION CONTACT:
MicroSIFT
Northwest Regional Educational Laboratory
101 SW Main Street, Suite 500
Portland, OR 97204
Phone: (503) 275-9500

ELECTRONIC DATABASES

Name:	COUNCIL OF MINISTERS OF EDUCATION
Producer:	Council of Ministers of Education, Canada 252 Bloor Street West Toronto, Ontario M5S 1V5
Started:	1986
Number of Records:	1600 (by mid-1988)
Update Frequency:	Every 3 months
Annual File Size Increase:	600 (reduced to 200 approx. by end of 1988)
Cost:	
Rate per hour:	None
On-line per citation cost:	None
Off-line per citation cost:	None
User fee per hour:	None
Telecommunications fee per hour:	$27.00 (CDN) includes rate per hour
Contact:	Ms. Sue Ewing Database Manager 252 Bloor Street West Toronto, Ontario M5S 1V5 Phone: (416) 964-2251

Description:

The Database for Educational Software, developed by the Council of Ministers of Education, Canada (CMEC), provides educators with descriptive and evaluative information on microcomputer software currently available in Canada. Provincial and territorial ministries and departments of education are contributing descriptions and evaluations of educational courseware for inclusion in the database. Each record in the database contains details such as the title of the software, its intended use, appropriate age levels, availability and price, an abstract, subject descriptors and an extensive evaluation of the software. The evaluations are based on a standard set of evaluation criteria established by representatives from all the provincial and territorial ministries/departments of education.

The CMEC database is available on-line in either English or French through the facilities of La Centrale des bibliothèques in Montreal. Any user equipped with a terminal or a microcomputer, a modem, communications software and telephone lines can access the database on-line.

ELECTRONIC DATABASES (cont'd)

Name: YORK ON-LINE SERVICE

Producer: Faculty of Education
York University
North York, Ontario
M3J 1P3

Started: 1985

Number of Records: 10,000

Update Frequency: Regularly/Ongoing (2 times per month approx.)

Cost:

Rate per hour:	None
On-line per citation cost:	None
Off-line per citation cost:	None
User fee per hour:	None
Telecommunications fee per hour:	None (using Datapac)

Contact: Ronald D. Owston, Director
Centre for the Studies of Computers in Education
Faculty of Education
North York, Ontario
M3J 1P3
Phone: (416) 736-5019

Description:

A comprehensive catalogue of commercially available educational software containing product descriptions and evaluations is provided. All subject areas from kindergarten through post-secondary as well as teacher utility packages are included.

Also, the service has a database of more than 700 software producers and an electronic bulletin board to allow educators to exchange information about software. Both databases allow full text searches.

In April 1988, the York On-Line Service will begin uploading 200-300 profiles of educational software aimed at the community college.

ELECTRONIC DATABASES (cont'd)

Name: RESOURCE IN COMPUTER EDUCATION (RICE)

Producer:
Northwest Regional Education Laboratory
101 SW Main Street, Suite 500
Portland, Oregon 97204
Phone: (503) 275-9500

Started: 1979

Number of Records: 3600

Update Frequency: Bi-monthly

Cost:

This database is accessed through BRS (Bibliographic Retrieval System).
Rates effective January 1, 1987:

Rate per hour:	$20.00 (US) (maximum)
On-line per citation cost:	$0.13 (US) (maximum)
Off-line per citation cost:	$0.23 (US) (maximum)
User fee per hour	Included in rate per hour
Telecommunications fee per hour:	$9.00 (US)

Contact:
Bibliographic Retrieval System
Information Technology
1200 Route 7
Latham, New York 12110
Phone: (518) 783-1161

Description:

This is a directory of microcomputer educational software. It is intended for teachers, administrators, computer coordinators and librarians. The directory is searchable by ERIC descriptors which identify the grade level and subject areas. Producer contact information, pricing and abstracts are provided.